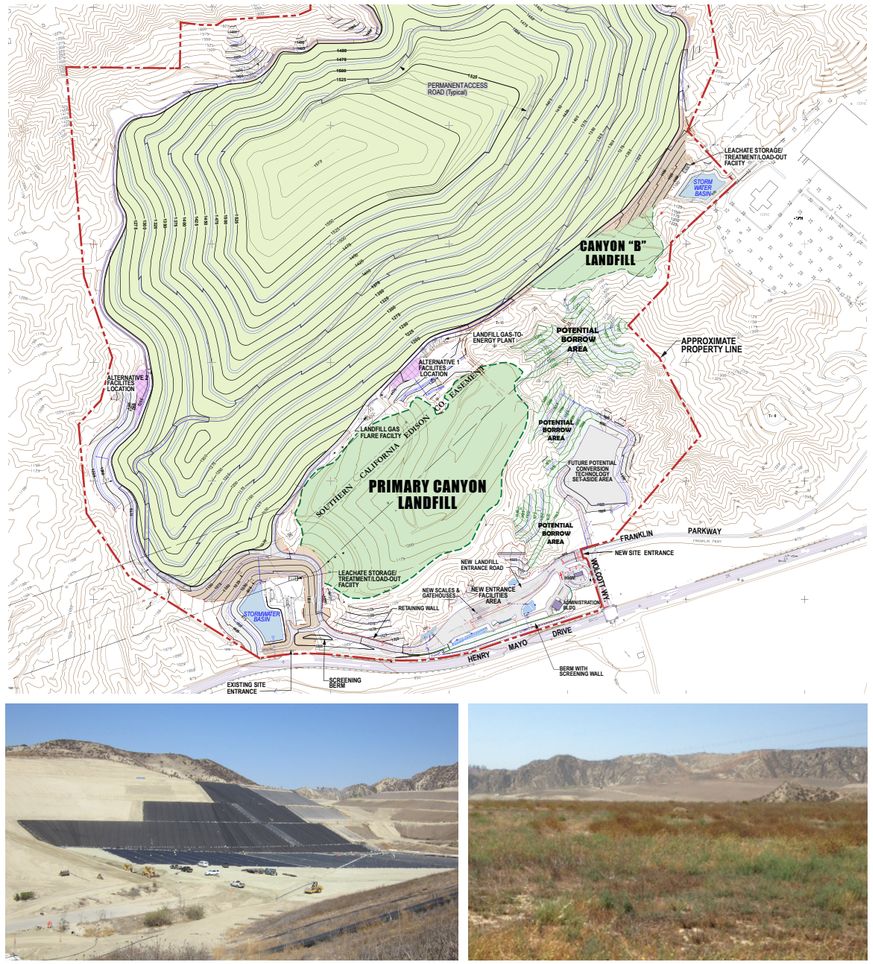
# Chiquita Canyon Landfill
# Master Plan Revision
# Partially Recirculated Draft Environmental Impact Report

**Project No. R2004-00559-(5)**
**SCH No. 2005081071**









EN1030151026SCO

Lead Agency:
***County of Los Angeles Department of Regional Planning***

Project Proponent:
***Chiquita Canyon Landfill***

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**Submittal:**
**November 9, 2016**

D R A F T

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CH2M HILL, Inc.
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Santa Ana, California 92707

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# Acronyms and Abbreviations

| | |
|---|---|
| ± | plus or minus |
| °C | degrees Celsius |
| °F | degrees Fahrenheit |
| µg/$m^3$ | microgram(s) per cubic meter |
| 2013 Annual Report | *County of Los Angeles Countywide Integrated Waste Management Plan Annual Report* |
| AB 939 | California Integrated Waste Management Act of 1989 |
| AB | Assembly Bill |
| AD | anaerobic digestion |
| ADAM | Aerometric Data Analysis and Management |
| Ameresco | Ameresco Chiquita Energy LLC |
| APCD | air pollution control district |
| AQMD | Air Quality Management District |
| AQMP | Air Quality Management Plan |
| AR4 | IPCC Fourth Assessment Report |
| AR5 | IPCC Fifth Assessment Report |
| ARI | Alternative Resources, Inc. |
| ATAS | Alternative Technology Advisory Subcommittee |
| BAAQMD | Bay Area Air Quality Management District |
| BACT | Best Available Control Technology |
| Basin | South Coast Air Basin |
| BAU | business as usual |
| BCC | Birds of Conservation Concern |
| BMP | best management practice |
| BOS | Board of Supervisors |
| CAA | Clean Air Act |
| CAAQS | California Ambient Air Quality Standards |
| $CaCO_3$ | bicarbonate |
| CalEPA | California Environmental Protection Agency |
| Cal-IPC | California Invasive Plant Council |
| CalRecyle | California Department of Resources Recycling and Recovery |
| Caltrans | California Department of Transportation |
| CAPCOA | California Air Pollution Control Officers Association |
| CARB | California Air Resources Board |

| | |
|---|---|
| CAT | California Environmental Protection Agency – Climate Action Team |
| CCAP | Community Climate Action Plan |
| CCAR | California Climate Action Registry |
| CCL | Chiquita Canyon Landfill |
| CCR | *California Code of Regulations* |
| CD | compact disc |
| CDFW | California Department of Fish and Wildlife |
| CEQA | *California Environmental Quality Act* |
| CERF | Compost Emission Reduction Factor |
| CESA | California Endangered Species Act |
| CFC | chlorofluorocarbons |
| CFP | Fully Protected Species |
| CFR | *Code of Federal Regulations* |
| $CH_4$ | methane |
| CIWMB | California Integrated Waste Management Board |
| CIWMP | Countywide Integrated Waste Management Plan |
| CNDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| $CO_2e$ | carbon dioxide equivalent |
| COC | constituent of concern |
| CQA | construction quality assurance |
| CSAC | California State Association of Counties |
| CSC | Species of Special Concern |
| CSE | Countywide Siting Element |
| CT | Candidate Threatened |
| CUP | Conditional Use Permit |
| CWA | Clean Water Act |
| cy | cubic yard(s) |
| DO | dissolved oxygen |
| DMEC | David Magney Environmental Consulting |
| DPM | diesel particulate matter |
| DTSC | California Department of Toxic Substance Control |
| DWR | California Department of Water Resources |
| EIR | Environmental Impact Report |

| | |
|---|---|
| EPA | United States Environmental Protection Agency |
| ESA | Environmental Site Assessment |
| ETA | Ecological Transition Area |
| FC | Candidate |
| FE | Federally Endangered |
| FESA | Federal Endangered Species Act |
| FPE | Federally Proposed Endangered |
| FPT | Federally Proposed Threatened |
| FR | *Federal Register* |
| FSC | Species of Concern |
| ft | feet; foot |
| FT | Federally Threatened |
| $g/m^2/day$ | grams per square meter per day |
| GCCS | landfill gas collection and control system |
| GCL | geosynthetic clay liner |
| GHG | greenhouse gas |
| GPS | Global Positioning System |
| GtC | gigatonnes of carbon |
| GWP | global warming potential |
| HCFC | hydrochlorofluorocarbon |
| HCP | Habitat Conservation Plan |
| HDPE | high-density polyethylene |
| HFC | hydrofluorocarbon |
| HHWF | Household Hazardous Waste Facility |
| HIA | acute hazard index |
| HIC | chronic hazard index |
| HRA | health risk assessment |
| I-5 | Interstate 5 |
| IPCC | United Nations Intergovernmental Panel on Climate Change |
| IWMA | Integrated Waste Management Act |
| JTD | joint technical document |
| KOP | key observation point |
| kV | kilovolt(s) |
| LACDPW | Los Angeles County Department of Public Works |
| LACSD | Los Angeles County Sanitation District |
| LADRP | Los Angeles County Department of Regional Planning |

| | |
|---|---|
| lbs/day | pounds per day |
| LCRS | leachate collection and removal system |
| LEA | Local Enforcement Agency |
| LFG | landfill gas |
| LFGTE | landfill gas-to-energy |
| LOS | level of service |
| LS | Less than Significant After Mitigation |
| LST | Localized Significance Threshold |
| LTS | Less Than Significant |
| m | meter |
| MBTA | Migratory Bird Treaty Act |
| MEIR | residential maximally exposed individual |
| MEIW | worker maximally exposed individual |
| MICR | maximum individual cancer risk |
| MMT | million metric tons |
| mph | miles per hour |
| MRF | Material Recovery Facility |
| MRL | Mesquite Regional Landfill |
| MRP | Monitoring and Reporting Program |
| MRR | Mandatory Reporting Rule |
| msl | mean sea level |
| MSW | municipal solid waste |
| MT | metric ton(s) |
| MT $CO_2e$ | metric ton(s) of $CO_2e$ |
| MT $CO_2e$/yr | metric ton(s) of $CO_2e$ per year |
| N/A | not applicable |
| $N_2O$ | nitrous oxide |
| NAAQS | national ambient air quality standards |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NI | no impact |
| NLF | Newhall Land and Farming Company |
| NMFS | National Marine Fisheries Service |
| NMOC | non-methane organic compound |
| NO | nitric oxide |
| $NO_2$ | nitrogen dioxide |
| NOP | Notice of Preparation |

| | |
|---|---|
| NOV | Notice of Violation |
| NOx | nitrogen oxide(s) |
| NPDES | National Pollutant Discharge Elimination System |
| NRMP | Natural River Management Plan |
| NSPS | Standards of Performance for New Stationary Sources |
| NSR | New Source Review |
| $O_2$ | oxygen |
| $O_3$ | ozone |
| OEHHA | Office of Environmental Health Hazard Assessment |
| OHWM | Ordinary High Water Mark |
| OIMP | Odor Impact Minimization Plan |
| OPR | Office of Planning and Research |
| PAL | plant-wide applicability limitations |
| PFC | perfluorocarbon |
| PHIMF | Puente Hills Intermodal Facility |
| $PM_{2.5}$ | particulate matter with aerodynamic diameter less than or equal to 2.5 microns |
| $PM_{10}$ | particulate matter with aerodynamic diameter less than or equal to 10 microns |
| ppb | parts per billion |
| ppm | parts per million |
| ppmv | parts per million by volume |
| Proposed Project | Chiquita Canyon Landfill Master Plan Revision |
| PS | potentially significant |
| PSD | Prevention of Significant Deterioration |
| Q1 | first quarter |
| RARE | rare/threatened/endangered species |
| REC | renewable energy credit |
| ROG | reactive organic gas(es) |
| RPR | Rare Plant Ranks |
| RWQCB | Regional Water Quality Control Board |
| SAA | Streambed Alteration Agreement |
| SAB | Science Advisory Board |
| SAR | IPCC Second Assessment Report |
| SB | Senate Bill |
| SCAG | Southern California Association of Governments |
| SCAQMD | South Coast Air Quality Management District |
| SCE | Southern California Edison |

| | |
|---|---|
| scfm | standard cubic feet per minute |
| SCOPE | Santa Clarita Organization for Planning and the Environment |
| SCREMP | Santa Clara River Enhancement and Management Plan |
| SCS | Sustainable Communities Strategy; SCS Engineers |
| SE | State Endangered |
| SEA | Significant Ecological Area |
| $SF_6$ | sulfur hexafluoride |
| SIP | State Implementation Plan |
| $SO_2$ | sulfur dioxide |
| SOx | sulfur oxide |
| SR-126 | State Route 126 |
| S/U | Significant and Unavoidable After Mitigation |
| SWAPE | Soil/Water/Air Protection Enterprise |
| SWFP | Solid Waste Facilities Permit |
| SWICS | Solid Waste Industry for Climate Solutions |
| SWMP | Stormwater Monitoring Program |
| SWPPP | Stormwater Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board |
| TAC | toxic air contaminant |
| Task Force | Los Angeles County Integrated Management Task Force |
| TASW | treated auto shredder waste |
| TCR | The Climate Registry |
| Title 27 | Title 27 *California Code of Regulations* |
| TNW | traditional navigable water |
| tpd | ton(s) per day |
| tpy | ton(s) per year |
| TS | transfer station |
| TSP | total suspended particulate |
| USACE | United States Army Corps of Engineers |
| USC | *United States Code* |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| VCWPD | Ventura County Watershed Protection District |
| VOC | volatile organic compound |
| WARM | warm freshwater habitat |
| WBR | waste-by-rail |

| | |
|---|---|
| WBWG | Western Bat Working Group |
| WDR | waste discharge requirement |
| WET | wetland habitat |
| WL | Watch List |
| WRI | World Resources Institute and the World Business Council for Sustainable Development |
| WTE | waste to energy |
| ZEC | Zone Exception Case |

# Executive Summary

## ES.1 Introduction

The Chiquita Canyon Landfill (CCL) Master Plan Revision (Proposed Project) is a proposal to expand the existing CCL facility located in the northwestern portion of unincorporated Los Angeles County. Implementation of the Proposed Project would require approval of a conditional use permit (CUP) by the County of Los Angeles.

This Partially Recirculated Draft Environmental Impact Report (EIR) addresses the potential environmental impacts of the Proposed Project and provides additional analysis for certain resource areas previously evaluated in the Original Draft EIR. The Partially Recirculated Draft EIR also includes two sections that are intended to provide additional information about the Proposed Project that are in addition to the Original Draft EIR.

The Partially Recirculated Draft EIR has been prepared in accordance with the California Environmental Quality Act (CEQA). Los Angeles County is the lead agency for the CEQA process, with the Los Angeles County Department of Regional Planning (LADRP) acting as the lead department of the lead agency for the Proposed Project. LADRP has independently evaluated, directed, and supervised the preparation of this document, in coordination with other County departments.

The Executive Summary identifies the purpose of the Partially Recirculated Draft EIR and the scope of comments to be considered during the Partially Recirculated Draft EIR recirculation period. The Executive Summary briefly describes the Proposed Project, introduces the chapters included in this Partially Recirculated Draft EIR, and summarizes the major findings of those chapters. Table ES-1 compiles the potentially significant impacts that have been identified for the resource areas analyzed in this Partially Recirculated Draft EIR and identifies the mitigation measures to be implemented.

### ES.1.1 Purpose of this Document

An EIR is a public informational document used for planning and decision-making purposes. The Los Angeles County Regional Planning Commission and, if appealed, the Board of Supervisors will consider the information in the Original Draft EIR, Partially Recirculated Draft EIR, and Final EIR, including the public comments and the staff responses to those comments during the public hearing process.

CEQA requires preparation of an EIR that reflects the independent judgment of the lead agency regarding the impacts, the level of significance of the impacts both before and after mitigation, and mitigation measures proposed to reduce the impacts. A Draft EIR is circulated to responsible agencies, trustee agencies with resources affected by the project, and interested agencies and individuals. The purposes of public and agency review of a Draft EIR include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and soliciting counterproposals. Reviewers of a Draft EIR are requested to focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated.

A Partially Recirculated Draft EIR has been prepared in accordance with Section 15088.5 of the state *CEQA Guidelines*. LADRP has determined that new or clarified information requires recirculation of certain chapters of the Original Draft EIR for the Proposed Project, originally released for public review in July 2014. A description of the changes to the Original Draft EIR that resulted in recirculation is provided in Section ES.3, Chapters Included in Partially Recirculated Draft EIR.

This Partially Recirculated Draft EIR is being distributed directly to agencies, organizations, and interested groups and persons for comment during a 60-day formal review period in accordance with Section 15087 of the state *CEQA Guidelines*.

### ES.1.2 Scope of Comments – Request to Limit Comments to Recirculated Information

Because the Original Draft EIR is revised only in part, and LADRP is recirculating only the revised chapters of the Original Draft EIR, LADRP is requesting that reviewers limit comments to the content of this Partially Recirculated Draft EIR. During preparation of the Final EIR, LADRP will respond to comments received during the initial circulation period that relate to chapters of the Original Draft EIR that have not been revised and recirculated, as well as comments received during the recirculation period related to this Partially Recirculated Draft EIR, consistent with the provisions of *CEQA Guidelines* Section 15088.5. LADRP will only consider new comments by reviewers that are submitted on the content of the Partially Recirculated Draft EIR, as the comment period on the Original Draft EIR has expired.

## ES.2 Summary of Proposed Project

CCL is an existing Class III (municipal solid waste) facility located in unincorporated Los Angeles County, near the City of Santa Clarita, just west of the Interstate 5 (I-5) and State Route 126 (SR-126) interchange (Figure ES-1). The site is a total of 639 acres, with an existing permitted waste footprint of approximately 257 acres. The currently permitted landfill is shown in Figure ES-2, and the final grading plan for the Proposed Project is shown in Figure ES-3.

Chiquita Canyon, LLC, has applied for a new CUP to implement the Proposed Project. The new CUP would include the following elements of the Proposed Project:

- Extended waste footprint by approximately 143 acres within the existing site boundary
- New site entrance and support facilities
- Increased maximum elevation
- Increased disposal rate and volume
- Continued acceptance of beneficial use material
- Better utilization of the landfill's remaining and potential disposal capacity
- Disposal of all nonhazardous wastes acceptable at a Class III solid waste disposal landfill, exclusive of sludge
- Mixed organics processing and/or composting operation
- Household Hazardous Waste Facility
- Land set-aside for a future potential conversion technology facility
- Continued operation of a Landfill Gas-to-Energy Plant operated by Ameresco and permitted by the County of Los Angeles

Each of these project elements is described in detail in Chapter 2.0, Project Description, of the Original Draft EIR, as well as in the revised Project Description included in this Partially Recirculated Draft EIR.

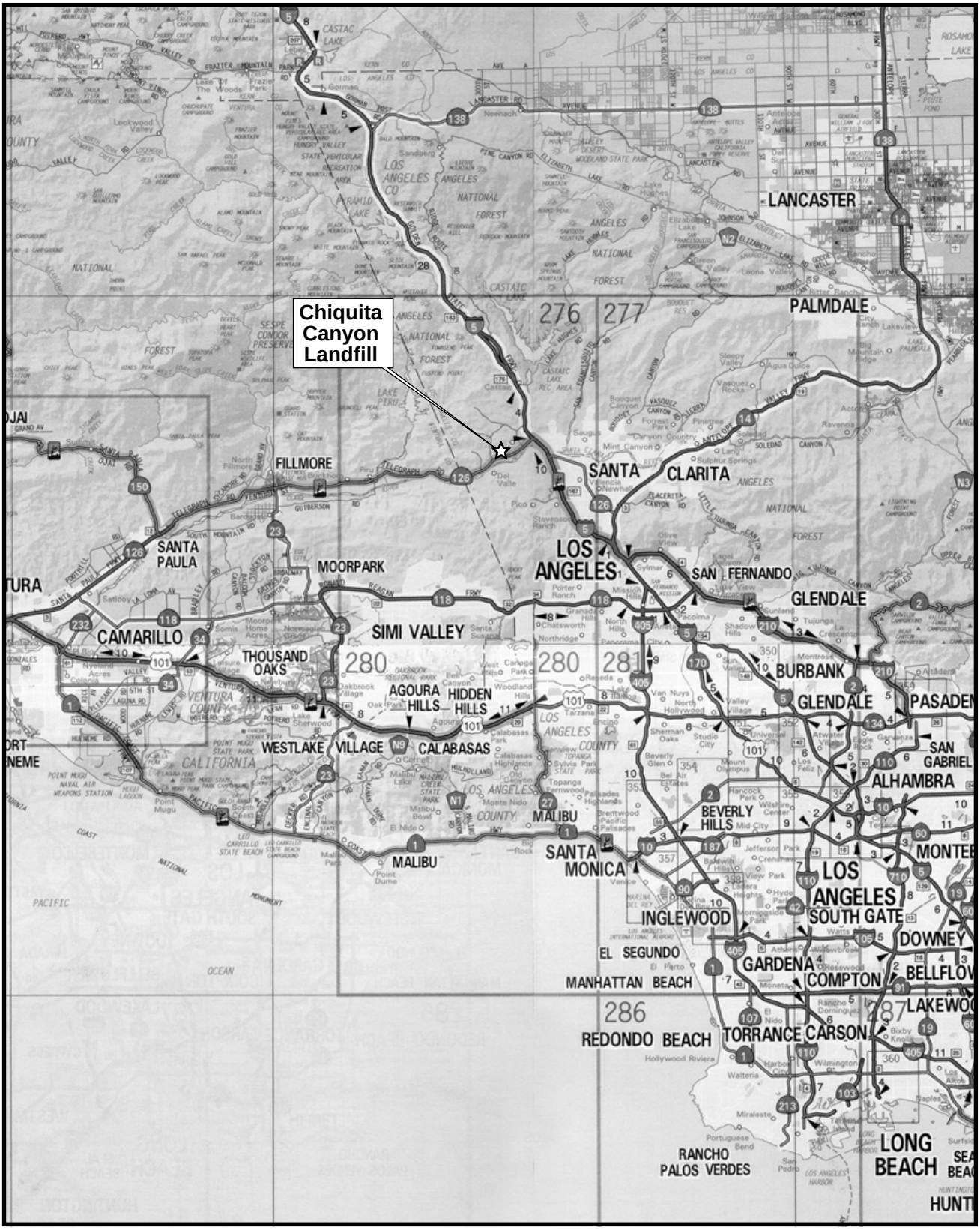



**Figure ES-1.**
**Regional Location Map**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Source: Thomas Guide, California Road Atlas, 22nd Edition, 2004.

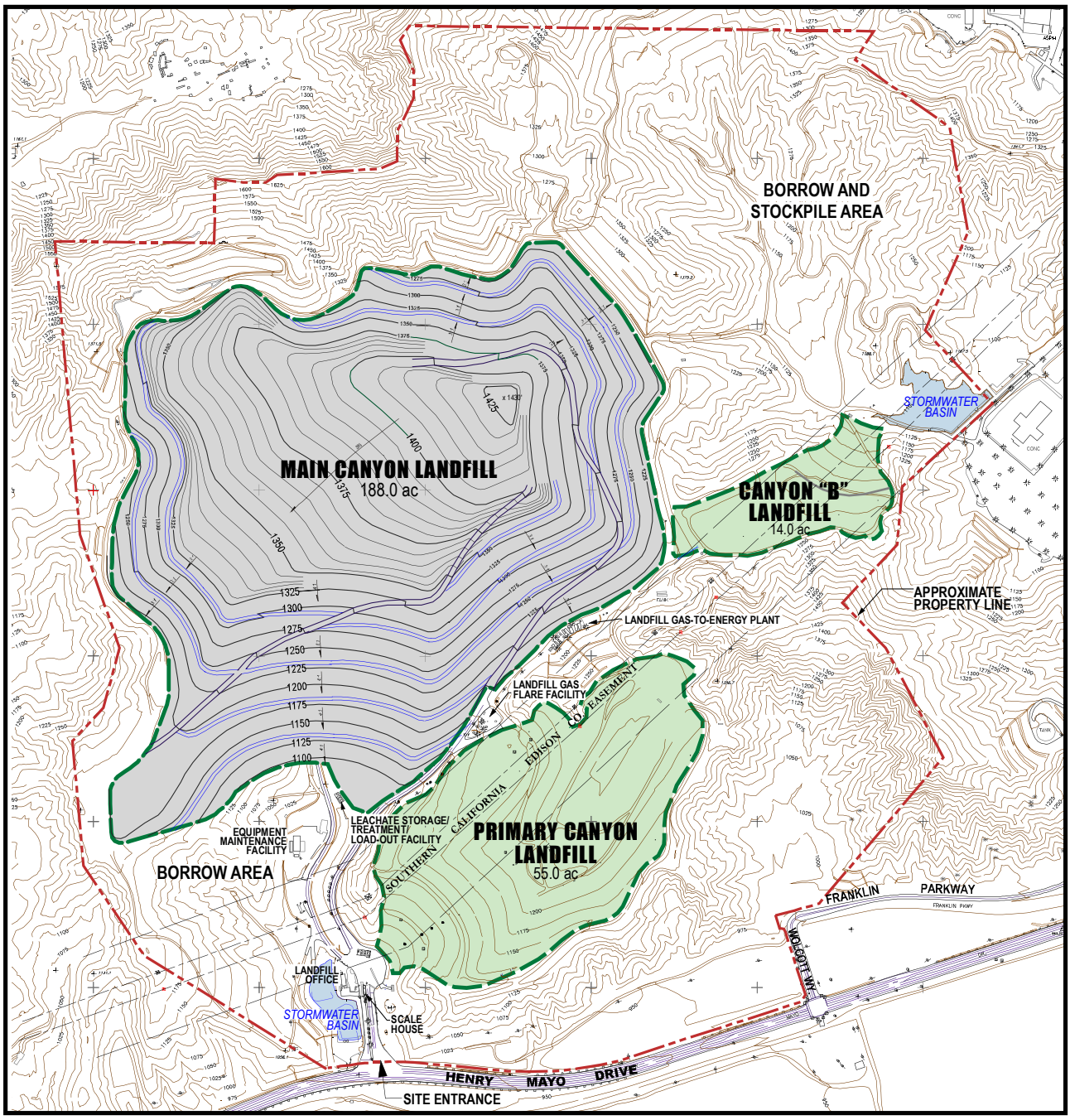
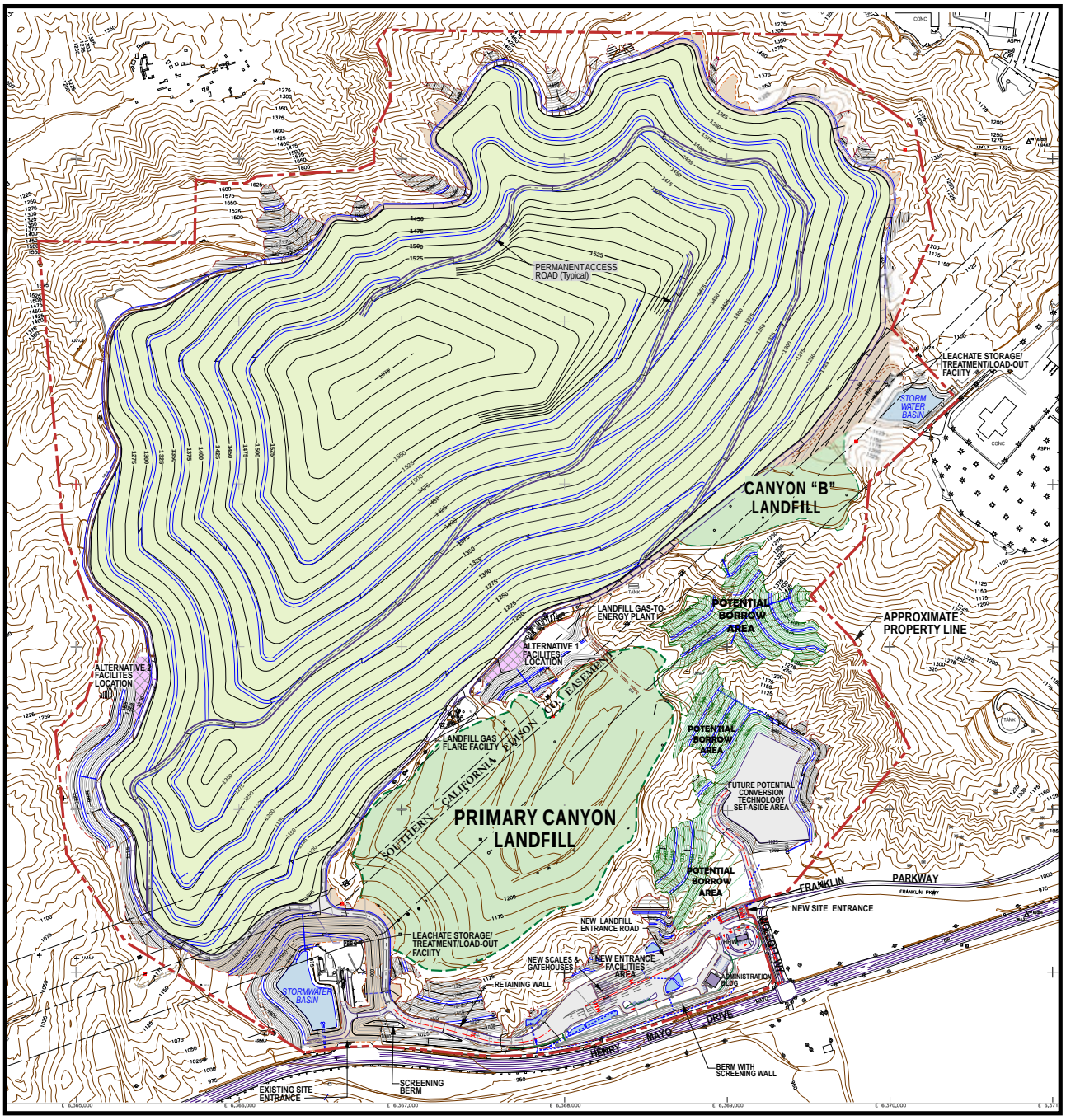



**Figure ES-2.**
**Permitted Landfill**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Source: Golder Associates, 2013




**LEGEND**

CLOSED LANDFILL AREA

N

0 400 800

Feet

**Figure ES-3.**
**Proposed Project Final Grading Plan**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Source: Golder Associates, 2014

# ES.3 Chapters Included in Partially Recirculated Draft EIR

## ES.3.1 Introduction (Chapter 1)

This chapter provides an updated discussion of the previous, current, and proposed permits for CCL, project purpose and objectives, and project need. This chapter also includes a clarification of the operational baseline for the Proposed Project; a discussion of the operational baseline compared to the Proposed Project; an overview of the recent operation of CCL; a discussion of the environmental review process and the public scoping process and circulation of the Original Draft EIR and Partially Recirculated Draft EIR; and presents the general content and organization of the Original Draft EIR and Partially Recirculated Draft EIR.

## ES.3.2 Project Description (Chapter 2)

This chapter describes the Proposed Project location and existing surrounding land uses and provides an updated detailed description of the Proposed Project, including the proposed facilities, lateral extension, increased elevation and disposal limits, material type and quantity to be received, operation, design features, environmental monitoring, and ancillary uses. This chapter also addresses landfill closure and post-closure plans.

## ES.3.3 Biological Resources (Chapter 8)

The Biological Resources chapter has been revised to more clearly indicate the potential for environmental impacts to plant or animal species and to identify appropriate mitigation measures for those potential impacts. The revisions do not result in greater environmental impacts or more significant impacts. Mitigation measures have also been revised for clarity.

## ES.3.4 Air Quality (Chapter 11)

The Air Quality chapter has been revised to incorporate comments from the South Coast Air Quality Management District (SCAQMD) on the Original Draft EIR. The air quality analysis included in the Original Draft EIR was conducted consistent with published SCAQMD CEQA guidance, which required evaluation of project significance based on comparison of construction-related emissions to construction thresholds and operation-related emissions to operation thresholds. After review of the Original Draft EIR, SCAQMD requested an alternate methodology based on combining the previously analyzed construction-related and operation-related emissions. In this Partially Recirculated Draft EIR, project significance has been evaluated based on a comparison of the combined potential emissions (construction and operation) to the operation thresholds. To further respond to SCAQMD comments, this chapter has been revised to include current odor data and associated information on wind patterns in the vicinity of CCL. Further, the chapter has been revised to incorporate operation of the proposed composting facility with construction and operation of the expanded landfill.

## ES.3.5 Greenhouse Gas Emissions and Climate Change (Chapter 12)

The greenhouse gas (GHG) emissions from CCL that would occur with the Proposed Project have been estimated using published and accepted accounting standards. Regulations and strategies for GHG reductions in California continue to evolve, especially for the waste management sector. Little relevant guidance for assessing the significance of GHG emissions in environmental studies exists at the federal, state, or local level. The most useful option under SCAQMD guidelines is comparison of the project to existing GHG reduction plans. As a result, this chapter has been revised in the Partially Recirculated Draft EIR to compare the GHG control techniques of the Proposed Project to those that would need to be implemented by the waste management sector in California to meet sector-wide and statewide GHG emission goals under the 2014 update to the California Air Resources Board (CARB) Scoping Plan.

Specifically, the significance of GHG emissions from the Proposed Project has been assessed by comparing the project-related emissions to CARB's business as usual (BAU) forecast for the waste management sector, and the estimated reductions by the sector (as compared to BAU) needed to achieve California's sector-wide and statewide emissions targets.

### ES.3.6 Project Alternatives (Chapter 18)

The Project Alternatives chapter included in the Original Draft EIR considered five alternatives. Three alternatives were analyzed, while two alternatives were considered but eliminated. The recirculated Alternatives chapter considers six alternatives: the three alternatives analyzed in the Original Draft EIR, the two alternatives previously considered but eliminated, plus one new reduced-size project alternative.

## ES.4 Major Findings and Conclusions

The following sections summarize the major findings and conclusions for the resource areas analyzed in this Partially Recirculated Draft EIR. Detailed information by resource area is provided in Chapters 8, 11, 12, and 18 of this Partially Recirculated Draft EIR.

### ES.4.1 Biological Resources (Chapter 8)

The analysis for biological resources has been revised for greater clarity and consistency regarding potential impacts. The revised Biological Resources chapter indicates the potential for impacts to vegetation communities, California Department of Fish and Wildlife and United States Army Corps of Engineers Jurisdictional Areas, special-status plant species, special-status wildlife species, special-status amphibians, special-status reptile species, federal- and state-listed bird species, nesting bird Species of Special Concern, foraging or transient bird Species of Special Concern (passerines and raptors), special-status mammals (including bats), wildlife movement corridors, and protected oak trees. Mitigation measures have been revised, and implementation of the proposed mitigation measures would reduce potential impacts to biological resources to less than significant levels.

### ES.4.2 Air Quality (Chapter 11)

The revised air quality analysis, conducted consistent with the alternate methodology proposed by SCAQMD in their comments on the Original Draft EIR, concludes that combined construction and operation emissions, measured solely against operational thresholds, would result in potentially significant impacts. Mitigation measures have been proposed, but potential air quality impacts would remain significant and unavoidable.

### ES.4.3 Greenhouse Gas Emissions and Climate Change (Chapter 12)

The significance of the Proposed Project's GHG emissions has been assessed by comparing the estimated project-related emissions to CARB's BAU forecast for the waste management sector, and the estimated reductions needed to achieve California's emissions targets for the sector and the state. The CARB plan targets a 19.1 percent reduction of solid waste-related emissions by the year 2020 as compared to BAU. The revised Greenhouse Gas Emissions and Climate Change chapter shows that the Proposed Project would result in emissions that would be 38.4 percent less than those that would result if CCL were designed and operated as per assumptions in CARB's BAU forecast for landfills. Thus, Proposed Project emissions would be substantially less than planned per the Scoping Plan, would be consistent with existing GHG reduction plans, and would be less than significant through 2020.

Unfortunately, a similar comparison cannot be developed for the entire life of the landfill, because similar plans for the waste management sector have not yet been prepared by CARB or other entities. There are no GHG reduction plans after 2020 against which to measure the significance of the project-related emissions. Thus, for lack of methods to reliably determine significance of emissions after 2020,

it has been conservatively assumed that Proposed Project and cumulative GHG impacts would be potentially significant and unavoidable in years after 2020. As a result, mitigation measures have been proposed, and CCL has committed to reducing landfill-related emissions to the extent technically feasible.

### ES.4.4 Project Alternatives (Chapter 18)

The revised Project Alternatives chapter considers six alternatives to the Proposed Project. These alternatives have been evaluated for potential environmental impacts, feasibility, ability to meet Proposed Project objectives, and ability to reduce the potentially significant impacts of the Proposed Project. The revised Project Alternatives chapter found that while some of the evaluated alternatives would meet some or most of the objectives of the Proposed Project or would reduce the potential severity of one or more potential impacts, none of the evaluated alternatives would reduce the potentially significant impacts of the Proposed Project.

## ES.5 Supplemental Information

### ES.5.1 Visual Resources Supplement

This supplement includes additional and revised existing condition photographs of the Proposed Project and character photographs of the project vicinity due, in part, to recent adjacent developments. The supplement also includes additional and revised visual simulations of the Proposed Project, and the environmental analysis has been updated as a result of these additions.

### ES.5.2 Traffic Supplement

This supplement provides clarification to the Traffic Analysis included in the Original Draft EIR with regard to the number of trucks included in the operational baseline. The supplement also includes an updated queuing analysis for the relocated site entrance included as part of the Proposed Project, to reflect the number of trucks included in the operational baseline for the Proposed Project.

## ES.6 Summary of Impacts and Mitigation

Table ES-1 summarizes the potential significant impacts that have been identified for the resource areas analyzed in this Partially Recirculated Draft EIR and identifies mitigation measures to be implemented.

Table ES-1. Summary of Project Impacts and Mitigation Measures

| Potentially Significant Impact | Mitigation | Level of Significance After Mitigation |
|---|---|---|
| **Biological Resources** | | |
| Potential impacts to vegetation communities | BR-1: The applicant shall develop a Closure Revegetation Plan for the Project in consultation with LADRP, and consistent with the Draft Revegetation, Rare Plant Relocation, and Oak Tree Performance Criteria provided in Appendix E2 of this Partially Recirculated Draft EIR. The Plan would require approval prior to authorization of land disturbance under the Proposed Project. The Plan shall require that CCL be revegetated to offset permanent impacts to native and naturalized habitats, in accordance with the following criteria:<br>• Native vegetation shall be used under the direction of specialists in restoration plantings. Native vegetation shall achieve a 1:1 ratio of impacted native, revegetated, and semi-natural habitat to revegetated mitigation land. Non-native grassland habitats would be initially seeded with native grassland species.<br>• Revegetation types, monitoring requirements, and success criteria including milestones, along with proposed remedial actions should vegetation alliances not achieve success criteria shall be included in the Closure Revegetation Plan, in accordance with the preliminary approach outlined in the Draft Revegetation, Rare Plant Relocation, and Oak Tree Performance Criteria provided in Appendix E2 of this Partially Recirculated Draft EIR.<br>• In order to replicate and potentially expand the available amount of native shrubland on the site, the Closure Revegetation Plan shall include a final soil cover of approximately 5 feet, or alternatively a depth approved by regulatory agencies and suitable to allow for proper root growth.<br>• The Closure Revegetation Plan shall be developed and implemented by an ecological restoration specialist familiar with restoration of native and naturalized Southern California plant alliances, and shall specify that revegetation will be done with locally native plants, and that revegetation will not include plant species on Los Angeles County's list of invasive species nor invasive species on the lists of the California Invasive Plant Council (Cal-IPC) nor invasive species listed by the California Native Plant Society.<br>• If success criteria for vegetation alliances are not met, remedial actions will be performed onsite consistent with the Closure Revegetation Plan.<br>• If success criteria for native shrub or forest alliances are not met even after remedial actions are performed, offsite mitigation land shall be purchased to offset the loss of the portion of the vegetation that does not meet the success criteria at a 1:1 ratio (impacted:mitigation land). The acreage acquired shall, if feasible, be generally local to the site or the general site area, ideally situated adjacent to or in the general proximity of the Santa Clara River, Hasley Canyon, or Angeles National Forest, and will connect with other protected open space. First priority would be given to lands that contribute to connecting the wildlife movement between the Santa Clara River through CCL to Hasley Canyon and to the Angeles National Forest.<br>• Any purchased mitigation land shall be protected be fee simple deed to a conservation organization experienced in management of natural lands.<br>• Additional mitigation for vegetation communities is included in Mitigation Measure BR-5 (vegetation associated with jurisdictional waters), Mitigation Measure BR-9 (rare plant communities), and Mitigation Measure BR-15 (oaks and oak woodlands). Mitigation ratios for replacement of these vegetation communities may be greater than the 1:1 ratio specified above, in coordination with CDFW for jurisdictional waters and rare plant communities and in coordination with LADRP for compliance with the County Oak Woodland Conservation and Management Plan.<br>BR-2: The construction area boundaries shall be delineated clearly. No construction activities, vehicular access, equipment storage, stockpiling, or significant human intrusion shall occur outside of the designated construction area. In addition, CCL ingress and egress routes shall be marked, and vehicle traffic outside these routes shall be prohibited. Vehicular traffic shall adhere to a speed limit of 15 miles per hour on non-public access roads during construction to ensure avoidance of impacts to sensitive biological resources.<br>BR-3: Soil or invasive plant seed transfer from clothing, shoes, or equipment shall be minimized through cleaning and monitoring of personnel or equipment transfers between sites, or prior to initial entry at CCL. Contract requirements to ensure vehicles are pressure washed and/or clean and free of soil or invasive weed seeds and other plant parts prior to entering the site will be implemented. Contracts will specify that pressure-washing of construction vehicles is to take place immediately before bringing the vehicle to CCL. The contractor will provide written documentation that the vehicles have been pressure washed or otherwise free of plant material that is checked by both CCL management and the biological monitor, who will jointly assure that this mitigation is implemented. The biological monitoring report will include a record of compliance with this measure.<br>Within 1 year of project approval, invasive tamarisk (*Tamarix* spp.) located onsite will be identified and removed completely. All parts of removed tamarisk will be disposed of in a landfill.<br>BR-4: On-road vehicles on the construction sites will be equipped with spark arresters on exhaust equipment. Camp fires, trash-burning fires, and warming fires shall be prohibited in the construction area. | LS |
| Potential impacts to CDFW and USACE jurisdictional areas | BR-5: For potential impacts to jurisdictional waters, permits shall be obtained for the Proposed Project from USACE (Section 404, CWA) and CDFW (SAA, Section 1603); conditions of these permits would be complied with for the Proposed Project. The terms and conditions of these permits are anticipated to require mitigation consistent with "Compensatory Mitigation for Losses of Aquatic Resources; Final Rule" (USACE, EPA, Federal Register, April 10, 2008), and with CDFW requirements for SAAs. A mitigation plan may be required prior to permit issuance. If a mitigation plan is required, ratios of waters impacted to waters mitigated would be negotiated with the regulatory agencies and the results of that negotiation included in the plan.<br>BR-6: Stationary equipment such as motors, pumps, generators, and welders shall be located a minimum of 50 feet outside CDFW and USACE jurisdictional drainages where impacts have not been permitted. Construction staging areas, stockpiling, and equipment storage shall be located a minimum of 50 feet outside non-permitted CDFW and USACE jurisdictional drainages. Construction vehicles and equipment shall be checked periodically to ensure they are in proper working condition, including regular inspections for leaks, which would require immediate repair. Refueling or lubrication of vehicles and cleaning of equipment, or other | LS |

Table ES-1. Summary of Project Impacts and Mitigation Measures

| Potentially Significant Impact | Mitigation | Level of Significance After Mitigation |
|---|---|---|
| | activities that involve open use of fuels, lubricants, or solvents, shall occur at least 100 feet away from CDFW and USACE jurisdictional drainages where impacts have not been permitted, and at least 50 feet from other flagged, sensitive biological resources.<br>BR-7: Only pesticides, herbicides, fertilizers, dust suppressants, or other potentially harmful materials approved by the EPA and/or the DTSC shall be applied at CCL, in accordance with relevant state and federal regulations. Rodenticides will not be used. Instead, methods that do not persist and infiltrate the natural food chain will be used for pest elimination such as trapping, gassing, etc. Sediment basins are present along all drainages at CCL, which capture runoff prior to discharging offsite. Sediment basins will continue to be regularly maintained. | |
| Potential impacts from nuisance wildlife | BR-8: Construction sites and landfill operation shall be kept free of trash and litter. Food-related trash and litter shall be placed in closed containers and disposed of daily. Nuisance wildlife breeding will be discouraged at CCL by excluding cavities in buildings and/or equipment or facilities left idle for more than 6 months. To reduce risk of infestation by the non-native Argentine ant (*Linepithema humile*), a 500-foot buffer will be established adjacent to uninfested habitats at CCL within which no permanent, artificial water sources will be applied, and inspections for exotic ant infestations will be required for any landscape or restoration container-stock plants proposed for installation. Landfill operations require a daily covering on all portions of the active landfill; this practice would be continued, further reducing risk of nuisance wildlife. | LS |
| Potential impacts to special-status plant species | BR-9: Preconstruction surveys by qualified botanists shall be conducted for special-status plant species in impact areas prior to ground-disturbing activities, and if necessary and feasible, resource relocation or exclusion shall be implemented. Resource relocation will be to a location deemed suitable for successful relocation by a qualified biologist and conducted in coordination with CDFW. Exclusion zones shall be implemented with fencing and/or signage that restricts access.<br>• For rare plants, this shall include focused surveys by a qualified botanist conducted during the appropriate season for detection (generally during flowering period) prior to ground-disturbing activities over the entire disturbance area proposed for the project, and then again the first season prior to disturbance over the area proposed to be disturbed for each phase (cell) of landfill development. If suitable transplant areas for rare plants exist at CCL, surveys will also include potential areas for relocation onsite in order to provide background data for determining transplant success. If no suitable relocation areas exist at CCL, potential mitigation areas in conserved areas within the local watersheds will be identified and surveyed at the same time in order to have background data. Surveys shall follow standard survey protocol for rare plants outlined in Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS, 2000a) and/or Protocols for Surveying and Evaluation Impacts to Special Status Native Plant Populations and Natural Communities (CDFW, 2009).<br>• If special-status plants are found at CCL, they shall be field marked and mapped with GPS units to evaluate potential for impacts from proposed grading. Where feasible, special-status plants will be avoided; protective measures to exclude areas shall be implemented. Exclusion zones adjacent to active construction or active landfill will be protected with permanent fencing. More remote exclusion zones not accessible by construction equipment or near adjacent road access points shall be protected by temporary fencing (e.g., orange construction fencing) when road access is within 100 feet. If road access becomes immediately available to the area, permanent fencing will be installed. Fencing shall be maintained and construction crews informed about avoidance during construction. The site biological monitor will continue to monitor compliance with exclusion zones.<br>• Rare plants have been identified within construction limits during 2016 surveys. For these, and any additional rare plants identified prior to ground disturbance that are within the grading footprint or other areas identified for unavoidable disturbance (including species of CNPS RPR 1-4 or Locally Rare) a Rare Plant Relocation Plan will be developed in consultation with CDFW. Plant salvage for transplantating shall take place before any clearing or grading of the sensitive plant occurs. Preliminary performance criteria, general methods of transplanting, and other anticipated components of this plan are provided in the Draft Revegetation, Rare Plant Relocation, and Oak Tree Performance Criteria provided in Appendix E3 of this Partially Recirculated Draft EIR.<br>• The Rare Plant Relocation Plan shall address mitigation for special-status plants, including topsoil salvage to preserve seed bank and management of salvaged topsoil; seed collection, storage, possible propagation, and planting; salvage and planting of other plant propagules (e.g., rhizomes, bulbs) as feasible; location of receptor sites to include on- or offsite property that could serve as permanent open space areas; land protection instruments for receptor areas; and funding mechanisms. The Rare Plant Relocation Plan shall include methods, monitoring, reporting, success criteria, adaptive management, and contingencies for achieving success. Where feasible, background data for up to 3 years will be collected on receptor sites.<br>• If rare plant relocation cannot be achieved, through lack of receptor sites, or lack of success during the monitoring period, then purchase of mitigation credits or offsite property with known populations of the affected species for inclusion in permanent open space areas or a conservation easement would be implemented, with priority given to acquisition of offsite property.<br>• The onsite receptor/mitigation sites would be monitored for a minimum of 5 years to determine mitigation success or failure, consistent with the Draft Revegetation, Rare Plant Relocation, and Oak Tree Performance Criteria provided in Appendix E2 of this Partially Recirculated Draft EIR and the Rare Plant Relocation Plan. If necessary, remedial measures consistent with the approved plan would be implemented to satisfy mitigation objectives. | LS |
| Potential impacts to special-status wildlife species | BR-10: Preconstruction surveys by qualified biologists shall be conducted for special-status wildlife species in impact areas prior to ground-disturbing activities, and if necessary and feasible, resource relocation or exclusion for special-status species shall be implemented. Wherever practical, relocation shall be passive, allowing animals to exit area on their own. Any grubbing, grading, or other ground disturbing activities at CCL would be done in a manner that encourages mobile wildlife species to leave the project area to escape safely into immediately adjacent undisturbed habitat, wherever feasible. For low mobility species, salvage and relocation by a qualified biological monitor would be implemented. Resource relocation shall be to a location deemed suitable for successful relocation by a qualified biologist and conducted by individuals with appropriate handling permits as required by CDFW or USFWS. Where practical, exclusion zones shall be implemented in lieu of relocation with fencing and/or signage that restricts access. Construction and construction monitoring for animals will occur at discrete time periods. Construction monitoring shall be conducted in areas containing native vegetation at the time of construction activity within the limit of active construction disturbance. Within | LS |

Table ES-1. Summary of Project Impacts and Mitigation Measures

| Potentially Significant Impact | Mitigation | Level of Significance After Mitigation |
|---|---|---|
| | areas containing native vegetation, ground-disturbing activities shall be prohibited until the area is cleared by a qualified biological monitor during a preconstruction survey within 7 days prior to the beginning of cell construction activities. Biological monitors shall also monitor construction activities within 100 feet of avoided CDFW and USACE jurisdictional drainages.<br>• For burrowing owl, suitable burrows will be identified during surveys and if feasible, excluded from disturbance during construction. If avoidance is not feasible, burrows will be scoped during the non-breeding season (September 1 to January 31) to determine if they are occupied. If unoccupied, burrows will be collapsed. If burrows are occupied, burrow exclusion will be implemented with one-way doors in burrow openings during the non-breeding season to exclude burrowing owls. After exclusion, burrows will be collapsed. If feasible, alternative manmade burrows will be installed on lands not subjected to construction disturbance, and within 300 feet of excluded burrows. Surveys would be consistent with CDFW requirements for burrowing owl survey; mitigation measures presented here are consistent with CDFW (2012), and details of how mitigation would be implemented would be consistent with this document.<br>• For special-status reptiles (coast patch-nosed snake, coastal western whiptail, California legless lizard, San Diego horned lizard), preconstruction surveys in areas where land clearing will occur shall consist of gently raking areas of soft soils, sand, and dense leaf litter to identify individuals burrowed or buried in leaf litter. Individuals encountered will be captured and translocated to an area of undisturbed, intact habitat nearby deemed suitable for successful translocation by a qualified biologist. Translocation will be performed by biologists with appropriate handling permits by CDFW.<br>• Special-status land mammals (San Diego black-tailed jackrabbit, San Diego desert woodrat, American badger): preconstruction surveys will consist of surveying and identifying evidence of occupancy and use, including rabbit forms, woodrat nests, and badger natal dens. If located during the breeding season for these species, features will be surveyed or scoped to determine occupancy if possible. If unoccupied, they will be dismantled or collapsed. If occupied, or if occupancy cannot be determined, exclusion zones will be established until occupancy can be determined or until the breeding season concludes. If features are identified during the non-breeding season, they will be gently dismantled or collapsed, allowing any occupants if present to disperse. Where habitat must be dismantled, alternative habitat features will be established in nearby undisturbed areas, including creating specific conditions suitable for the species if necessary, such as downed wood structures in shade suitable for woodrat.<br>• For western spadefoot, if ground-disturbing activities will be conducted within 1,000 feet of the sedimentation basins at CCL, preconstruction ground surveys shall occur within 1,000 feet of potential breeding ponds (sediment basins). The top 6 inches of soft soils and leaf litter shall be gently raked and small mammal burrows and soil cracks will be inspected or scoped for aestivating spadefoot. Any aestivating western spadefoot encountered during preconstruction surveys within 1,000 feet of sedimentation basins would be relocated to intact habitat not proposed for the current phase of construction within 1,000 feet of the sedimentation basins, and placed in similar habitat and conditions.<br>• Bird nests: Preconstruction surveys for nesting pairs, nests, and eggs shall occur in areas proposed for vegetation removal, and active nesting areas flagged. Mitigation shall be implemented as described below under BR-13.<br>• Bat Roosts: Where bat roosting habitat cannot be avoided, preconstruction surveys consisting of exit surveys, roost surveys of potential roost sites, and evidence of bat sign (guano) shall occur to identify bat species, as feasible, and active roosts. Mitigation shall be implemented as described below under BR-14. | |
| Potential impacts to special-status amphibians | BR-10 | LS |
| Potential impacts to special-status reptile species | BR-1, BR-10 | LS |
| Potential impacts to federal- and state-listed bird species | BR-11: USFWS protocol-level surveys shall be conducted for all coastal California gnatcatcher habitat well in advance of any ground-disturbing activities. If surveys are negative, the species shall be presumed absent, and no further impacts shall be anticipated or mitigation measures required.<br>If the surveys are positive (i.e., coastal California gnatcatcher is present), then coordination shall be initiated with USFWS on required measures to avoid, minimize, or mitigate take of this species. These are anticipated to include:<br>• Construction activities in the vicinity of active gnatcatcher nests shall be prohibited within a specified distance of nests (500 feet unless otherwise agreed to by USFWS) until after the young have fledged and the nesting is complete.<br>• Clearing of occupied habitat shall be avoided if possible or practicable. If it is not practicable, clearing shall be prohibited during the nesting season (February to August).<br>BR-12: Although no nighttime construction is anticipated, lighting for construction activities conducted during early morning or early evening hours shall be minimized to the extent possible through the use of directional shading to minimize impacts to nocturnal or crepuscular wildlife. Only CDFW-recommended designs for lighting, fences, power poles, or other manmade features would be implemented where available. | LS |
| Potential impacts to nesting bird Species of Special Concern | BR-1, BR-10, BR-12<br>BR-13: In habitats where nesting birds might occur, vegetation removal shall be avoided when feasible during the nesting season (December through August); winter months are included because this area has potential for owls and hummingbirds, which may breed during this period. In addition, raptor nesting may be initiated by early January. Where this is not feasible, preconstruction surveys for nesting pairs, nests, and eggs shall occur in areas proposed for vegetation removal, and active nesting areas flagged. The biological monitor shall assign a buffer around active nesting areas (typically 300 feet for songbirds, 500 feet for raptors). The biological monitor will also clearly communicate the limits of buffers to the contractor and crew, and post and maintain, throughout the time of nest use, flagging, fencing, staking, or signs as otherwise needed. Construction activities shall be prohibited within the buffer until the nesting pair and young have vacated the nests, unless it can be demonstrated through biological monitoring that the construction activity is not hindering the nesting effort. Alternatively, if unused nests are identified in the disturbance area during preconstruction surveys, nests may be destroyed or excluded prior to active nesting. | LS |

Table ES-1. Summary of Project Impacts and Mitigation Measures

| Potentially Significant Impact | Mitigation | Level of Significance After Mitigation |
|---|---|---|
| Potential impacts to foraging or transient bird Species of Special Concern (Raptors) | BR-1 | LS |
| Potential impact to special-status mammals (excluding bats) | BR-1 and BR-10 | LS |
| Potential impact to special-status mammals (bats) | BR-14: A qualified bat biologist acceptable to CDFW shall be employed to supervise and report on construction activities with respect to bats. In habitats where roosting bats may occur, ground disturbance and roost destruction shall be scheduled, as feasible, during October 1 through February 28 or 29. Ground disturbance and roost destruction shall be avoided during the parturition period (generally March through August). Where this is not feasible, a qualified bat biologist shall conduct exit surveys, roost surveys of potential roost sites, or surveys for bat sign (e.g., guano) to identify bat species, if feasible, and active roosts. Construction activity within 300 feet of identified active roosts shall be prohibited until the completion of parturition (end of August); unless it can be demonstrated through biological monitoring that the construction activity is not affecting the active roost. Alternatively, if potential roosts are identified prior to onset of parturition, with concurrence from CDFW, roosts may be excluded during the evening forage period (within 4 hours after dark) or fitted with one-way exit doors to effectively eliminate and exclude roost. If tree roosts are identified that require disturbance, and which cannot be excluded, they would be initially disturbed by cutting small branches (less than 2 inches) to encourage habitat abandonment, prior to full tree removal (implemented the following day). Roost exclusion will be conducted by a qualified bat biologist. Exclusion shall be preferentially done in March or September for eviction of a maternity colony, and only with concurrence from CDFW. If exclusion is necessary, the bat biologist shall identify the bat species to be excluded, as feasible, and roost sites appropriate to the species to be displaced in the vicinity (within 1 mile) prior to any bat exclusion, and if none are identified, CCL shall provide artificial roost construction appropriate to the bat species to be displaced to offset loss of active roosts. Artificial roost construction would follow industry standard design, be sized to offset impacted roost(s), and be located greater than 300 feet from active construction area, but within CCL property. A report will be prepared for submittal to CDFW and copied to LADRP on activities related to bat surveys and exclusion, including survey methods, findings including species and size of roosts if available, alternative roost locations and characteristics, and constructed roosts. | LS |
| Potential impact to wildlife movement corridors | BR-1 and BR-12 | LS |
| Potential impacts under local policies or ordinances | BR-15: For unavoidable impacts to qualifying oak trees, an Oak Tree Permit application shall be submitted to the LADRP. All permit terms and conditions shall be complied with from the final permit issuance, including planting of replacement trees. An Oak Tree and Woodland Mitigation Plan which identifies the mitigation area shall be submitted to LADRP and approved prior to issuance of a grading permit for the Proposed Project that would disturb areas within the protected zone of any oak trees regulated by the County Oak Tree Ordinance. The site shall be assessed for oak woodlands, including scrub oaks, at the time of disturbance according to the County Oak Woodland Conservation and Management Plan, and the Oak Tree and Woodland Mitigation Plan would also address mitigation for oak woodland impacts, including scrub oaks. As appropriate, potential impacts to oak woodlands shall be mitigated by planting understory plants in the same area identified onsite for mitigation oaks pursuant to the Oak Tree Permit and Oak Tree and Woodland Mitigation Plan for the Proposed Project. | LS |
| Potential impacts to western spadefoot from detention basin management | BR-16: To avoid operational impacts to western spadefoot which may occur during intentional draining of detention basins, or sediment removal from detention basins, the following protocol would be implemented, under an approach coordinated with CDFW: (1) All drainage equipment would be new or used exclusively for detention basins on CCL to avoid transfer of Chytridiomycosis (i.e., chytrid fungus) or any other amphibian diseases or pathogens to detention basins on CCL from other sites; (2) pumping equipment intakes would be screened with fine mesh and would pump from deeper portions of the detention ponds to ensure that eggs, larvae, or adults of western spadefoot would not be entrained in pump apparatus; (3) at any given pumping event, only 80 percent of the volume (measured as depth at the deepest point of the detention basin) would be pumped, leaving pooled water of at least a 5-inch depth for any potential western spadefoot to complete its life cycle; and (4) sediment removal would only occur during the dry season, when ponded water is not present. | LS |
| **Air Quality** | | |
| Potentially significant air quality impacts due to estimated NOx, ROG, $PM_{10}$, and $PM_{2.5}$ emissions from construction and operation | AQ-1: The applicant shall use certified street sweepers that comply with SCAQMD Rule 1186.1.<br>AQ-2: The applicant shall use innovative approaches to reducing potential air emissions from construction of buildings, such as modular building products, where prefabricated portions of structures are assembled elsewhere and are erected at the construction site, as feasible. This would eliminate the need for onsite painting, a majority of the plumbing, and other consumer product usage.<br>AQ-3: The applicant shall provide offsetting emission reduction credits for predicted net emission increases from sources requiring permitting under New Source Review regulations. | S/U |
| Potential for compost facility to create objectionable odors affecting a substantial number of people | AQ-4: Prior to operation of the compost facility, the applicant shall develop an Odor Impact Minimization Plan (OIMP) pursuant to the requirements of the California Code of Regulations, Title 14, Division 7, Chapter 3.1, Article 3, and Section 17863.4; CCL shall comply with the OIMP during compost facility operation. | LS |

Table ES-1. Summary of Project Impacts and Mitigation Measures

| Potentially Significant Impact | Mitigation | Level of Significance After Mitigation |
|---|---|---|
| **Greenhouse Gas Emissions and Climate Change** | | |
| Potential for Project and cumulative GHG impacts | GHG-1: Beginning in 2020, the applicant shall provide LADRP with reports every 5 years, which shall evaluate consistency of landfill operations with current state and county GHG emission reduction plans. If LADRP finds that a report demonstrates that landfill operations do not meet the GHG emission reduction targets of then-current state and county GHG emission reduction plans, the applicant shall develop and within 1 year submit to LADRP for review and approval a GHG Emissions Reduction Plan, which shall require implementation of additional feasible GHG emissions reduction measures within the waste management sector to further reduce GHG emissions in accordance with then-current state and county goals. The GHG Emissions Reduction Plan may incorporate some or all of the following measures:<br>• Further or additional composting;<br>• Further or additional recycling;<br>• Upgrades or enhancements to the existing Gas Collection System;<br>• Development of alternative energy, including additional landfill gas-to-energy production capacity and/or development of other on-site renewable energy generation capacity;<br>• Use of alternative fuels in on-site equipment; or some combination of the listed strategies; and/or<br>• Other waste management sector strategies developed by CalRecycle and CARB addressing GHG emissions from waste management<br>GHG-2: Following closure of the landfill, the applicant shall continue to operate, maintain, and monitor the landfill gas collection and control system as long as the landfill continues to produce landfill gas, or until it is determined that emissions no longer constitute a considerable contribution to GHG emissions, whichever comes first. | S/U |

Notes:
CCL = Chiquita Canyon Landfill
CDFW = California Department of Fish and Wildlife
CNPS = California Native Plant Society
DTSC = California Department of Toxic Substance Control
EPA = United States Environmental Protection Agency
GPS = global positioning system
LS = Less than Significant After Mitigation
NOx = nitrogen oxide(s)
$PM_{2.5}$ = particulate matter with aerodynamic diameter less than or equal to 2.5 microns
$PM_{10}$ = particulate matter with aerodynamic diameter less than or equal to 10 microns
ROG = reactive organic gas(es)
RPR = Rare Plant Ranks
S/U = Significant and Unavoidable after Mitigation
SAA = Streambed Alteration Agreement
USACE = United States Army Corps of Engineers
USFWS = United States Fish and Wildlife Service

CHAPTER 1

# Introduction

## 1.1 Project Background

The Chiquita Canyon Landfill (CCL) is an existing Class III (municipal solid waste [MSW]) facility located in northwestern Los Angeles County near the City of Santa Clarita, just west of the Interstate 5 (I-5) and State Route 126 (SR-126) junction (Figure 1-1). The site is a total of 639 acres, with an existing permitted waste footprint of approximately 257 acres, although not all of the 257 acres have been developed.

CCL was previously owned by the Newhall Land and Farming Company (NLF) and, prior to 1999, was operated by Laidlaw Waste Systems, Inc. under a lease agreement with NLF. CCL came under management of Republic Services, Inc. in 1999 and was subsequently purchased by Republic Services, Inc. in 2001. In 2009, CCL was purchased by Waste Connections, Inc. (Waste Connections); Chiquita Canyon, LLC, a subsidiary of Waste Connections, is the owner and operator of CCL.

This chapter includes a discussion of previous, current, and proposed permits for CCL, project purpose and objectives, and project need. This chapter also includes a clarification of the operational baseline for the CCL Master Plan Revision (Proposed Project), a discussion of the operational baseline compared to the Proposed Project, an overview of the recent operation of CCL, a discussion of the environmental review process, and a description of project approvals required for the Proposed Project.

## 1.2 Previous, Current, and Proposed Permits for CCL

### 1.2.1 Previous Approvals for CCL

Landfill operations at CCL have been permitted by the County of Los Angeles since 1965 under the following approvals:

- Zone Exception Case (ZEC) 7879: land reclamation project, approved 1965
- ZEC 8040: access road, approved 1966
- ZEC 8191: additional conditions and modified conditions for refuse disposal and land reclamation project, approved 1967
- Conditional Use Permit (CUP) 1010: continued operation of waste disposal facility and land reclamation project, approved 1977 (expiration 1987)
- CUP 1809-5: expansion of existing landfill and continued operation, approved 1982 (expiration 1997)
- CUP No. 89-081(5): expanded operation, approved 1997

### 1.2.2 Current Conditional Use Permit

The current CUP No. 89-081(5) is for the permitted landfill area of 257 acres and a maximum daily permitted disposal of 6,000 tons per day. The currently permitted landfill consists of three fill areas: Primary Canyon, Canyon B, and Main Canyon (Figure 1-2). Primary Canyon and Canyon B stopped receiving waste in 1988 and 1989, respectively.

The current CUP contains several distinct conditions that control disposal capacity of the landfill:

- Height and Area: The final grading plan (maximum elevation of 1,430 feet) as shown on Exhibit A of the CUP (CUP Conditions 5 and 9b)

- Amount of Material: 23-million-ton overall disposal limit (CUP Condition 46); 30,000 tons per week disposal limit (CUP Condition 9d); and 6,000 tons per day disposal limit (CUP Condition 9e)
- Timeframe for Operation: Closure date of November 24, 2019 (CUP Conditions 5 and 46)

The CUP also includes a provision that nothing prohibits a future landfill expansion (CUP Condition 9c), such as the expansion being proposed as part of the Proposed Project.

The waste tonnage disposed has varied from the maximum permitted weekly tonnage to much less depending on various factors, including the economy. The CUP allows the landfill to operate 24 hours per day, except from 5:00 p.m. Saturday through 4:00 a.m. Monday (CUP Condition 9h). Landfill maintenance activities may occur 24 hours per day, 7 days per week. Typically, CCL is open during the following hours, as noted on their website:

| | |
|---|---|
| **Commercial Customers** | |
| Monday | 4:30 a.m. to 5:00 p.m. |
| Tuesday – Friday | 3:00 a.m. to 5:00 p.m. |
| Saturday | 4:30 a.m. to 2:00 p.m. |
| **General Public** | |
| Monday – Friday | 7:00 a.m. to 5:00 p.m. |
| Saturday | 7:00 a.m. to 2:00 p.m. |

Because CCL is permitted to be open 24 hours per day, 6 days per week, the landfill can make alternate arrangements with commercial customers, regardless of the hours of operation posted on their website.

The previous landfill expansion, originally proposed in 1989 included developing an East Canyon area previously referred to as Fill Modules 8 and 9. As a result of the disposal tonnage limit included in the CUP, Fill Modules 8 and 9 were deleted from the proposed grading plan. Additionally, the landfill footprint was reduced north of the entrance area. The approved final grading plan, included with the CUP as Exhibit A, does not include the originally proposed Fill Modules 8 and 9, but as noted above, does include language noting that nothing prohibits proposing a future landfill expansion (CUP Condition 9c). CCL reached the 23-million-ton overall disposal limit described in CUP Condition 46 in July 2016. Prior to that date, CCL requested and received a limited operational waiver issued by the Los Angeles County Department of Regional Planning (LADRP) pursuant to Los Angeles County Code Section 22.04.110, which became effective in July 2016. The waiver was supported by an approved Addendum to the Final Environmental Impact Report (EIR) prepared pursuant to *California Environmental Quality Act (CEQA) Guidelines* Section 15164 which discloses that, although the landfill was approaching its 23 million ton capacity, operational efficiencies left space within the vertical and horizontal envelope analyzed and approved as part of the Board of Supervisors Preferred Alternative. The limited waiver allows CCL to continue operation under the current CUP as long as the landfill and County are actively engaged in pursuit of a new CUP. The limited waiver allows CCL to accept waste up to the 29.4 million tons analyzed in the Final EIR for CUP No. 89-081 and requires CCL to provide weekly reports to LADRP that document waste disposal rates and remaining capacity. The waiver is scheduled to expire on July 31, 2017. However, the waiver will cease to be in effect before that date if a final approval or denial action is taken on the CUP by the County, if the CUP application is withdrawn by the applicant, or if the waiver is revoked by the Director of Planning.

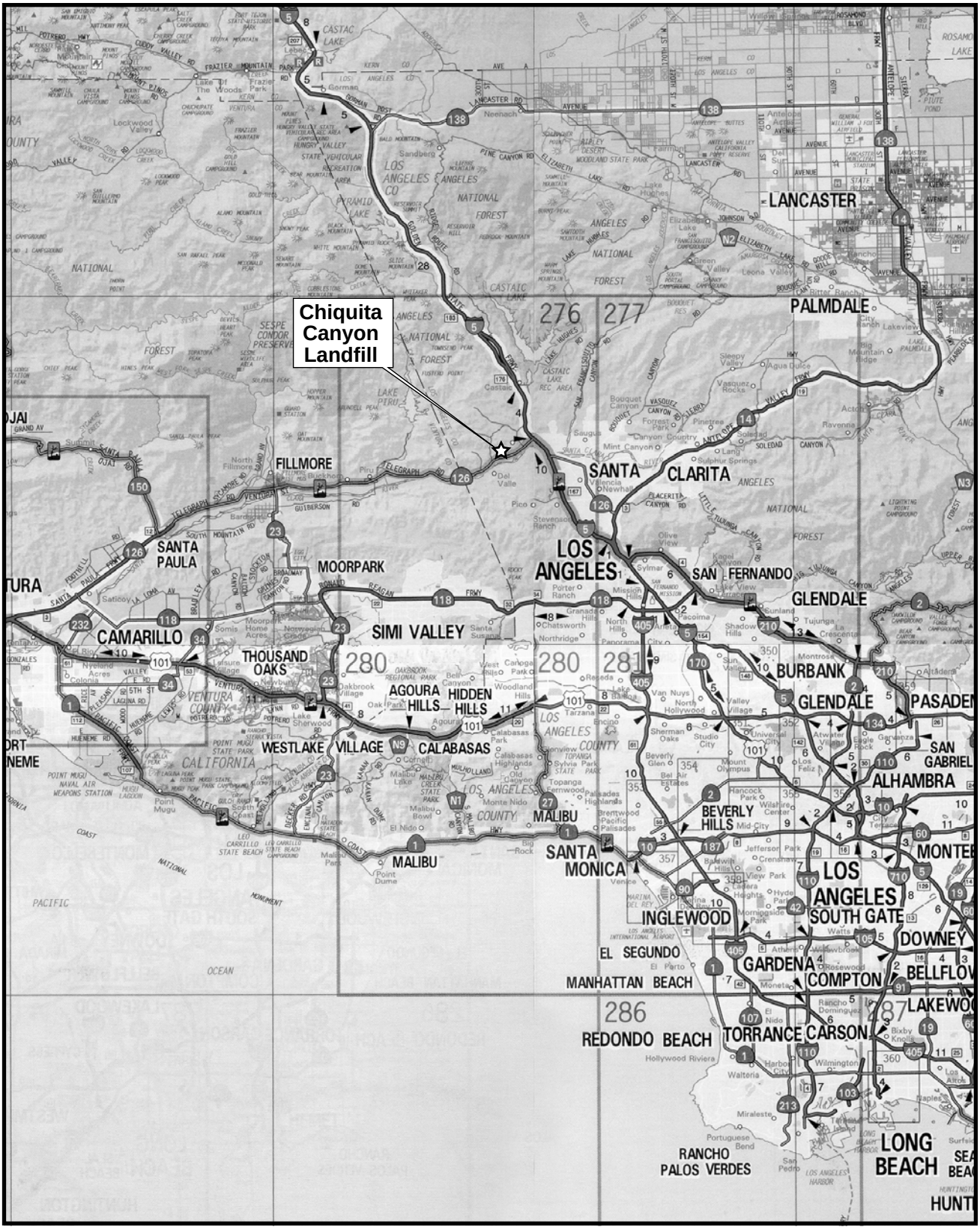



**Figure 1-1.**
**Regional Location Map**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Source: Thomas Guide, California Road Atlas, 22nd Edition, 2004.

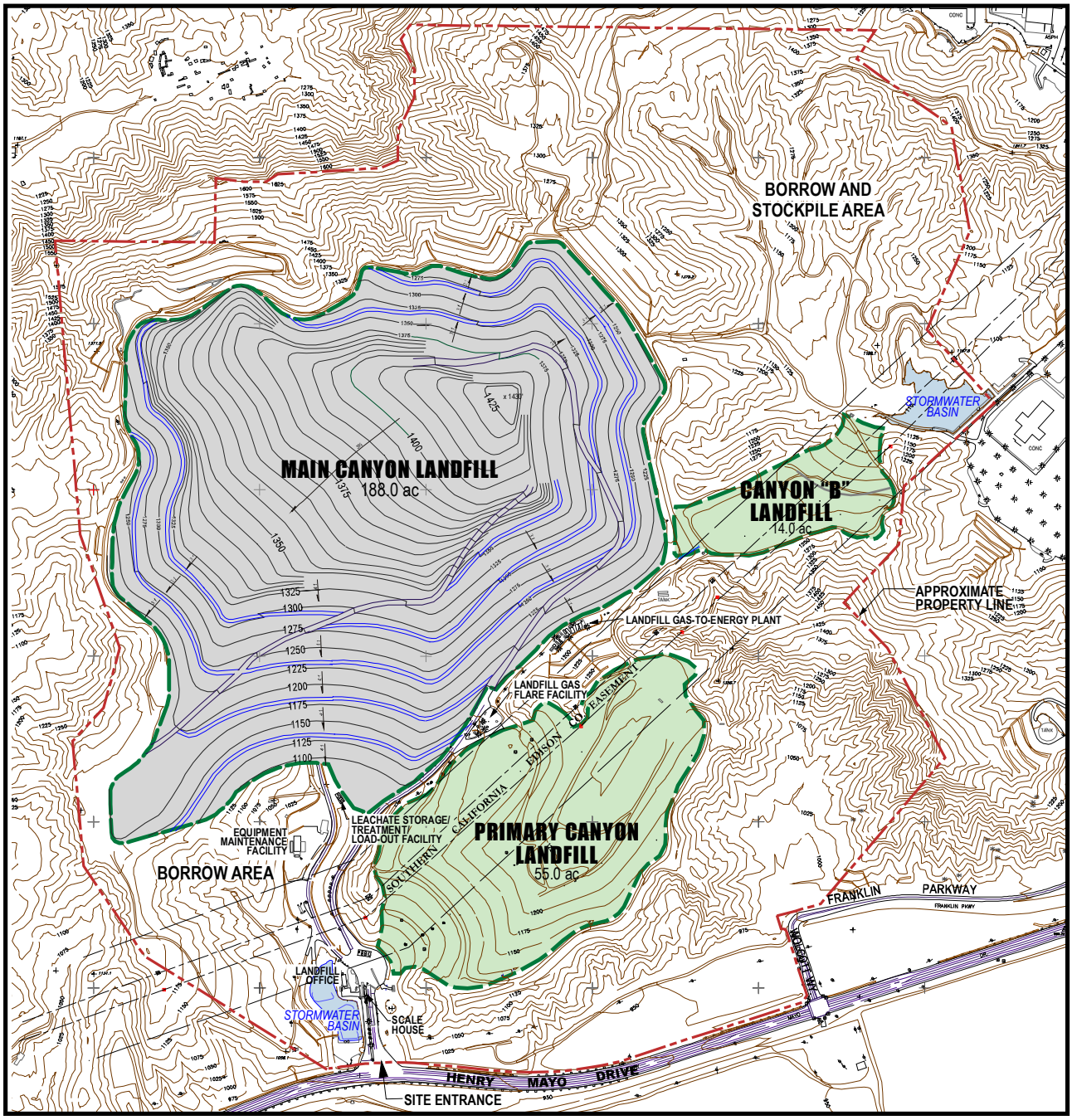



**Figure 1-2.**
**Permitted Landfill**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Source: Golder Associates, 2013

EN1030151026SCO CCL_permitted_landfill_2016.ai 9/16

### 1.2.3 Proposed Conditional Use Permit

Chiquita Canyon, LLC has applied for a new CUP to implement the Proposed Project. The new CUP would include the following elements of the Proposed Project:

- Extended waste footprint by approximately 143 acres within the existing site boundary
- New site entrance and support facilities
- Increased maximum elevation
- Increased disposal rate and volume
- Continued acceptance of beneficial use material
- Better utilization of the landfill's remaining and potential disposal capacity
- Disposal of all nonhazardous wastes acceptable at a Class III solid waste disposal landfill, exclusive of sludge
- Mixed organics processing and/or composting operation
- Household Hazardous Waste Facility (HHWF)
- Land set-aside for a future potential conversion technology facility
- Continued operation of a Landfill Gas to Energy Plant operated by Ameresco and permitted by the County of Los Angeles

## 1.3 Project Purpose and Objectives

The purpose of the Proposed Project is to provide additional disposal capacity through continued operation of CCL to help meet the solid waste management needs of Los Angeles County. Development of additional economically viable disposal capacity in a reasonable timeframe is required to meet the current and anticipated needs for the Santa Clarita Valley and the greater Los Angeles area, as existing landfills reach capacity and close. The Proposed Project will capitalize on the unique opportunity to utilize the existing CCL facility to achieve the development of additional disposal capacity.

In late 2015, the Los Angeles County Department of Public Works (LACDPW) issued their 2014 Annual Update to the Los Angeles County Countywide Integrated Waste Management Plan (CIWMP). Ensuring consistency between the Proposed Project and the 2014 Annual Update required that the objectives identified for the Proposed Project be revised.

As revised, the primary objectives of the Proposed Project are:

- To support the County's goal of maintaining adequate reserve (excess) landfill capacity to ensure the disposal needs of the County are met (LACDPW, 2015)
- To support the County's goal of managing the County's waste disposal needs, which specifically includes expansion of existing in-County landfills (such as CCL) (LACDPW, 2015)
- To support the County's goal to provide solid waste disposal without interruption to protect the public health and safety as well as the environment (LACDPW, 2015)
- To mitigate constraints that may limit the accessibility of Class III landfill capacity within the planning period of the most current CIWMP (LACDPW, 2015)
- To provide environmentally sound, safe, commercially and technically feasible, and cost-effective solid waste management solutions through continued operation and development of the existing CCL facility
- To prevent premature closure of the landfill with underutilized remaining airspace capacity

- To provide a site that could accommodate future waste conversion technology solutions
- To provide a site to accommodate processing of organic waste
- To provide a site for a permanent County-operated HHWF
- To continue to provide landfill waste diversion programs that are relied upon by many local cities and communities in achieving state mandates for waste diversion

## 1.4 Project Need

LACDPW prepares an Annual Report to the County of Los Angeles CIWMP. The 2014 Annual Report evaluates seven scenarios assuming various capacity options that are currently available or may become available in the future (e.g., existing in-County landfill capacity, import/exports, out-of-County disposal facilities, diversion, alternative technologies, etc.) to assist the County in meeting the Daily Disposal Demand for the planning period, from 2014 to 2029. All seven scenarios assume an increase in diversion rate considering all jurisdictions in the County are required to comply with new state law such as the mandatory commercial recycling and diversion of organics from landfills. The report concludes that in order to maintain adequate disposal capacity, jurisdictions in the County must continue to pursue all of the following strategies:

- Maximize Waste Reduction and Recycling
- Expand Existing Landfills
- Study, Promote, and Develop Alternative Technologies
- Expand Transfer and Processing Infrastructure
- Out-of-County Disposal (including Waste-by-Rail)

The 2014 Annual Report (LACDPW, 2015) specifically identifies several areas in which the Proposed Project supports the waste management needs of Los Angeles County. These are summarized below:

- “To meet disposal capacity needs during the planning period, jurisdictions in the County must…, if found to be environmentally sound and technically feasible, expand in-County Class III landfill capacity.”
- “Expanded landfill capacity is necessary, provided it can be done in a technically feasible and environmentally safe manner.”
- “The County acknowledges that although all the scenarios assume an increase in diversion rate, there will be significant challenges in developing the processing capacity needed by the 2020 deadline. Therefore, maintaining adequate reserve (excess) capacity will be essential in ensuring that the disposal needs of the County are met throughout the 15-year planning period.”

The 2014 Annual Report also includes an update to the Countywide Siting Element (CSE), a component of the County General Plan. The current CSE revision includes the proposed expansion of two in-County Class III landfills – Chiquita Canyon and Scholl Canyon Landfills – in order to increase landfill capacities within the County (LACDPW, 2015).

The Proposed Project includes a 560 ton per day mixed organics processing/composting facility and a Set-Aside for a Future Waste Conversion Facility. Both of these project elements support the County’s goals to promote, encourage, and expand waste diversion activities at disposal facilities, to reduce or remove organic material from landfills, to develop additional in-County solid waste management infrastructure for composting and anaerobic digestion facilities, and to assist jurisdictions in achieving higher diversion rates.

# 1.5 Clarification of Operational Baseline

*CEQA Guidelines* Section 15125(a) states that "an EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published" and that this environmental setting will "normally constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant." LADRP determined that the appropriate baseline condition for the Proposed Project is established by the physical environmental condition of the site and vicinity for the year 2011, which is the year the Notice of Preparation (NOP) was published for the Proposed Project. LADRP further determined that operation of CCL in 2011 is the operational baseline against which the change associated with the Proposed Project should be evaluated. Clarification of the operational baseline does not change the Proposed Project that was evaluated in the Original Draft EIR or in this Partially Recirculated Draft EIR.

Specifically, LADRP reviewed the amount of material received at CCL in 2011 by category, including waste disposal material and beneficial use material. Material received at CCL in 2011 is summarized below in Table 1-1.

Table 1-1. Material Received
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*
*Chiquita Canyon Landfill Operation 2011*

| Month | Waste Disposed (tons) | Beneficial Use Material (tons) | All Inbound Material (tons) | Loads (trucks) |
|---|---|---|---|---|
| January | 106,261 | 27,036 | 133,297 | 8,606 |
| February | 86,751 | 30,367 | 117,118 | 7,640 |
| March | 106,493 | 62,072 | 168,565 | 10,333 |
| April | 98,494 | 72,650 | 171,143 | 10,847 |
| May | 93,246 | 73,925 | 167,171 | 10,328 |
| June | 119,076 | 90,914 | 209,990 | 12,496 |
| July | 115,062 | 81,384 | 196,446 | 11,576 |
| August | 119,270 | 66,037 | 185,306 | 11,068 |
| September | 115,950 | 61,712 | 117,662 | 10,656 |
| October | 119,364 | 59,806 | 179,172 | 10,849 |
| November | 124,989 | 52,347 | 117,336 | 10,446 |
| December | 125,355 | 57,578 | 182,933 | 10,775 |
| Annual Total | 1,330,310 | 735,827 | 2,066,138 | 125,620 |
| Daily Average | 4,264 | 2,358 | 6,622 | 403 |
| Percent of Total | 64% | 36% | 100% | -- |

Acceptance rates for waste disposal material are highly variable, as a result of varying market conditions and other factors more fully described below in Section 1.6. The type and volume of beneficial use material is even more highly variable and dependent on local activities that would produce these materials. This variability is shown in Table 1-1, as monthly quantities of waste disposed ranged from 86,751 tons in February to 125,355 tons in December. Beneficial use material similarly ranged in

quantity from 27,036 tons in January to 90,914 tons in June. The number of trucks associated with all inbound material ranged from a low of 7,640 in February to a high of 12,496 in June.

Notwithstanding the variability of rate of material received at CCL, including minimum and peak quantities for waste disposed and beneficial use material, LADRP determined that the operational baseline for CCL is the average of all material received at CCL in 2011, which is shown in Table 1-1 as 6,622 tons per day, based on 312 operating days per year.

Table 1-1 further illustrates that the average of beneficial use material received is 2,358 tons per day, and the average daily number of trucks associated with all inbound material is 403. The daily average for trucks associated with inbound material does not include vehicles that are not processed through the scale house, such as employee vehicles, visitors, or construction vehicles for periodic cell construction. The baseline for traffic includes these 403 trucks associated with the operational baseline, plus 100 vehicles associated with periodic cell construction, and 65 vehicles associated with employees and/or visitors.

Table 1-1 also shows that in 2011, 64 percent of all inbound material received at CCL was waste disposed, and 36 percent was beneficial use material.

Chart 1-1 illustrates the operational baseline established for CCL.

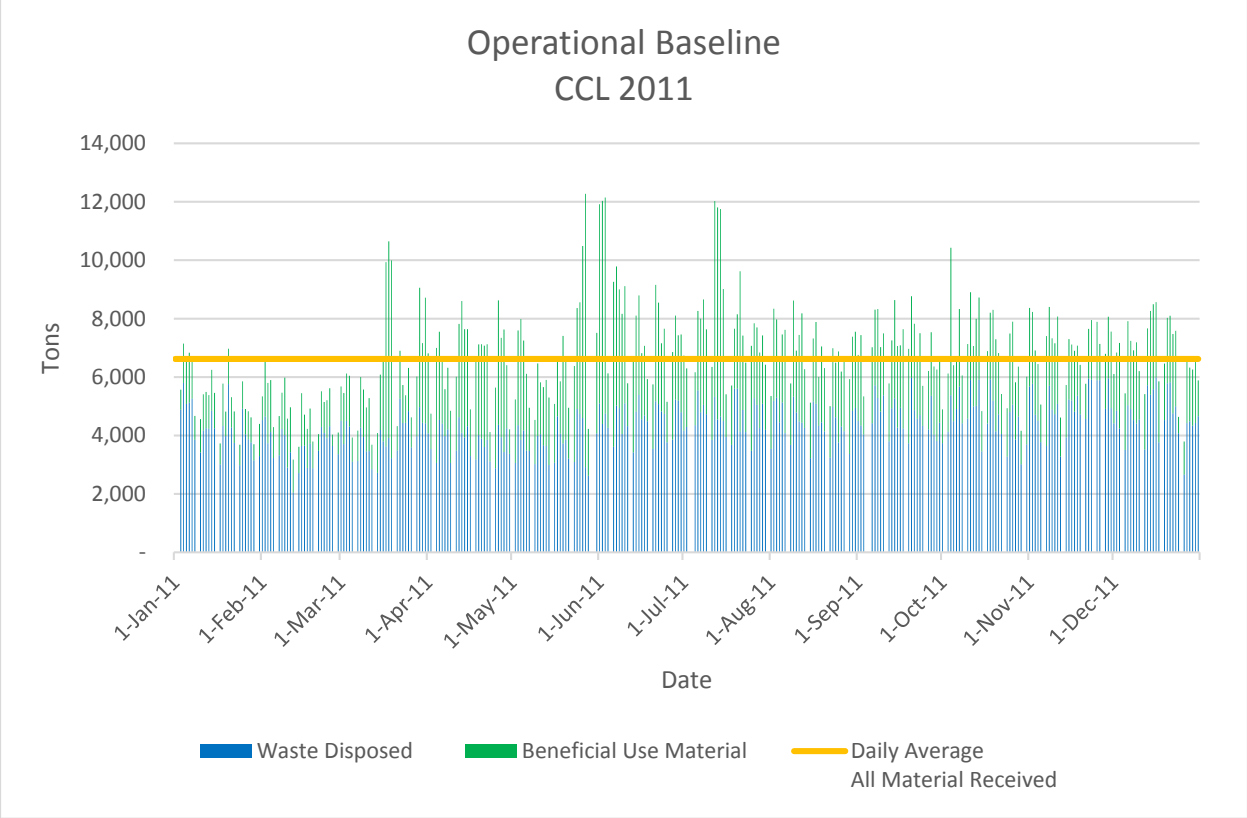



**Chart 1-1. Operational Baseline**
*CCL 2011*

# 1.6 Baseline Compared to the Proposed Project

## 1.6.1 Summary of Operational Baseline and Proposed Project – Material Received

The operational baseline for the rate of material received is considered in conjunction with the Proposed Project. This comparison is shown in Table 1-2.

**Table 1-2. Operational Baseline with Proposed Project**
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Disposal Material and Beneficial Use Material | Operational Baseline | Proposed Project[a] | Peak Change |
|---|---|---|---|
| Inbound Material | 6,622 tons per day | 13,182 tons per day | 6,560 tons per day |

[a] The Proposed Project consists of an additional 6,000 tons per day of waste to be disposed and 560 tons per day of mixed organics compost material added to the operational baseline.

## 1.6.2 Summary of Operational Baseline and Proposed Project – Trucks

The operational baseline for truck trips is considered in conjunction with truck trips associated with the Proposed Project. This comparison is shown in Table 1-3.

**Table 1-3. Operational Baseline with Proposed Project – Truck Trips[a]**
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| All Inbound Material | Truck Baseline | Proposed Project | Peak Change |
|---|---|---|---|
| Truck Trips | 403 per day | 975 per day | 572 per day[b] |

[a] Only trucks associated with inbound material are considered in Table 1-3.

[b] Includes 272 transfer trucks and 300 route trucks. It is estimated that transfer trucks would carry an average of 22 tons per load and route trucks would carry an average of 10 tons per load. The tonnage per truck would be variable depending on material, and the type of truck would vary, but total additional trucks would not exceed 572 and total additional tonnage would not exceed 6,560 tons.

## 1.6.3 Summary of Environmental and Operational Baseline and Proposed Project by Major Project Element

To provide a complete picture of the change evaluated in the Original Draft EIR and this Partially Recirculated Draft EIR, the environmental and operational baseline and Proposed Project are compared for each of the major project elements described in the Project Description for the Proposed Project, as included in the 2014 Original Draft EIR and included in this Partially Recirculated Draft EIR. Each of the major elements for the Proposed Project is identified in Table 1-4, along with a summary of the baseline and Proposed Project for each element, and an identification of the change for each major element that is evaluated in the EIR.

Table 1-4. Major Project Elements: Baseline, Proposed, and Change
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Major Project Element | Project Description Section | Baseline | Proposed | Change Evaluated in EIR |
|---|---|---|---|---|
| Entrance and Support Facilities | 2.2.1 | Facilities presently located onsite | Facilities located onsite, but relocated | Facilities in a new location |
| Waste Footprint | 2.2.2 | 257 acres | 400 acres | 143 acres lateral extension |
| Maximum Elevation | 2.2.2 | 1,430 feet msl | 1,573 msl | 143 feet increase |
| Type of Material to be Received | 2.2.3 | Nonhazardous solid waste, excluding sludge, as described in 27 CCR 20220(c) | Nonhazardous solid waste, excluding sludge, as described in 27 CCR 20220(c) | No change |
| | | Clean soil and other beneficial use material | Clean soil and other beneficial use material | No change |
| Rate of Waste to Be Received | 2.2.4 | Permitted 6,000 tons per day | Permitted 12,000 tons per day | 6,000 tons per day |
| | | Permitted 30,000 tons per week | Permitted 60,000 tons per week | 30,000 tons per week |
| Rate of All Inbound Material to Be Received | 2.2.4 | Operational Baseline 6,622 tons per day | 13,182 tons per day | 6,560 tons per day |
| Landfill Construction | 2.2.5 | Periodic construction activities | Periodic construction activities | No change, but construction activities for the Proposed Project evaluated in EIR |
| Landfill Operation | 2.2.6 | Operating activities required to accommodate 6,000 tons per day of waste disposal and associated diversion of materials from disposal | Operating activities required to accommodate 12,000 tons per day of waste disposal and continued diversion of materials from disposal | Increased truck traffic, employees, onsite equipment, and water usage associated with additional 6,000 tons per day of waste disposal |
| Landfill Design Features | 2.2.7 | Landfill design based on prescriptive and performance standards set by state and federal regulatory requirements | Landfill design based on prescriptive and performance standards set by state and federal regulatory requirements | Modified final topography, to accommodate increase in landfill volume |
| Environmental Monitoring | 2.2.8 | Onsite environmental monitoring systems to protect groundwater, surface water, and air quality; also nuisance and health hazard monitoring | Expanded onsite environmental systems required to accommodate the larger landfill footprint and additional daily volume | Additional groundwater monitoring points and landfill gas monitoring points, along with an expanded odor control system |
| Household Hazardous Waste Facility | 2.2.9 | Facility permitted under existing CUP until November 24, 2027, but not constructed or operating | New onsite facility | New onsite facility |

Table 1-4. Major Project Elements: Baseline, Proposed, and Change
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Major Project Element | Project Description Section | Baseline | Proposed | Change Evaluated in EIR |
|---|---|---|---|---|
| Mixed Organics Composting Facility | 2.2.10 | 560 tons per day green waste composting permitted under existing CUP until November 24, 2027, but not currently operating | 560 tons per day mixed organics processing/ composting | Restarting a processing/ composting operation at 560 tons per day, while adding organics in keeping with State and County goals |
| Land Set-Aside for Conversion Technology Facility | 2.2.11 | No existing land set-aside or facility | New land set-aside | New land set-aside to promote waste conversion technology in keeping with County goals |
| Landfill Gas-to-Energy Plant | 2.2.12 | Facility operational onsite | Facility operational onsite | No change |
| Landfill Closure and Post Closure | 2.3 | Closure activities requiring the approval of RWQCB, the LEA, and CalRecycle | Closure activities requiring the approval of RWQCB, the LEA, and CalRecycle | No change |

Notes:
CalRecycle = California Department of Resources Recycling and Recovery
CCR = *California Code of Regulations*
LEA = Local Enforcement Agency
RWQCB = Regional Water Quality Control Board

# 1.7 Recent Operation of CCL

While Section 1.5 establishes the operational baseline for CCL based on the year 2011, the year the NOP was published, and Section 1.6 compares the environmental and operational baseline to the Proposed Project, Section 1.7 provides an overview of CCL's recent operation relative to quantities of disposal material and beneficial use material received at CCL since the NOP for the Proposed Project was issued in 2011. The time period summarized for recent operation is January 1, 2011 through March 31, 2016 (Q1 2016). Typical operations are 6-days per week; yearly averages are based on 312 days per year, although actual operating days per year may be less based on holidays.

## 1.7.1 Disposal Material

CCL receives waste disposal material from the Santa Clarita Valley, including Val Verde, Castaic, Santa Clarita, and the surrounding unincorporated county; the northern San Fernando Valley; the greater Los Angeles Basin via various transfer stations; and a limited area of Ventura County. In general, there are no geographic constraints on the sources of waste.

Management of solid waste in Los Angeles County is characterized by several disposal facilities serving a large metropolitan area, as opposed to one major facility serving a specific city or county area. As such, there can be major variances in the source of wastes and the tonnage received at CCL. Contributing factors include closures at other landfills, changes in disposal fees, or other circumstances not controlled by CCL. Thus, market factors (i.e., supply and demand; disposal pricing) largely dictate where the waste disposed at CCL originates.

Acceptance rates for disposal material, which is primarily MSW but may also include other materials not diverted from disposal, are highly variable, as a result of varying market conditions and other factors listed above. The variability of waste received has resulted in averages that have ranged from 2,971 tons per day in 2012 to 4,264 tons per day in 2011 and 4,271 tons per day in 2016. The daily average for the entire reporting period is 3,544 tons per day. The quantities of disposal material received at CCL during the reporting period are summarized in Table 1-5 and illustrated in Chart 1-2.

Table 1-5. Disposal Material
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*
*Chiquita Canyon Landfill Operation 2011-2016*

| Year | Annual (tons) | Minimum Day (tons) | Maximum Day (tons) | Average Day (tons) |
|---|---|---|---|---|
| 2011[a] | 1,330,310 | 2,044 | 5,986 | 4,264 |
| 2012 | 926,864 | 1,418 | 5,782 | 2,971 |
| 2013 | 1,029,326 | 1,785 | 5,999 | 3,299 |
| 2014 | 1,110,206 | 1,972 | 5,991 | 3,558 |
| 2015 | 1,075,207 | 2,013 | 4,939 | 3,446 |
| 2016 Q1 (Actual) | 333,165 | 2,100 | 5,996 | 4,271 |
| 2016 (Projected Based on Q1 Totals) | 1,332,684 | -- | -- | -- |

[a] 2011 is the baseline year, as described in Section 1.5, Clarification of Operational Baseline.
Q1 = first quarter

Chart 1-2 shows that CCL has frequently operated at or near its permit limit of 5,000 tons per day average or 6,000 tons per day maximum, up to 30,000 tons per week, throughout the reporting period.

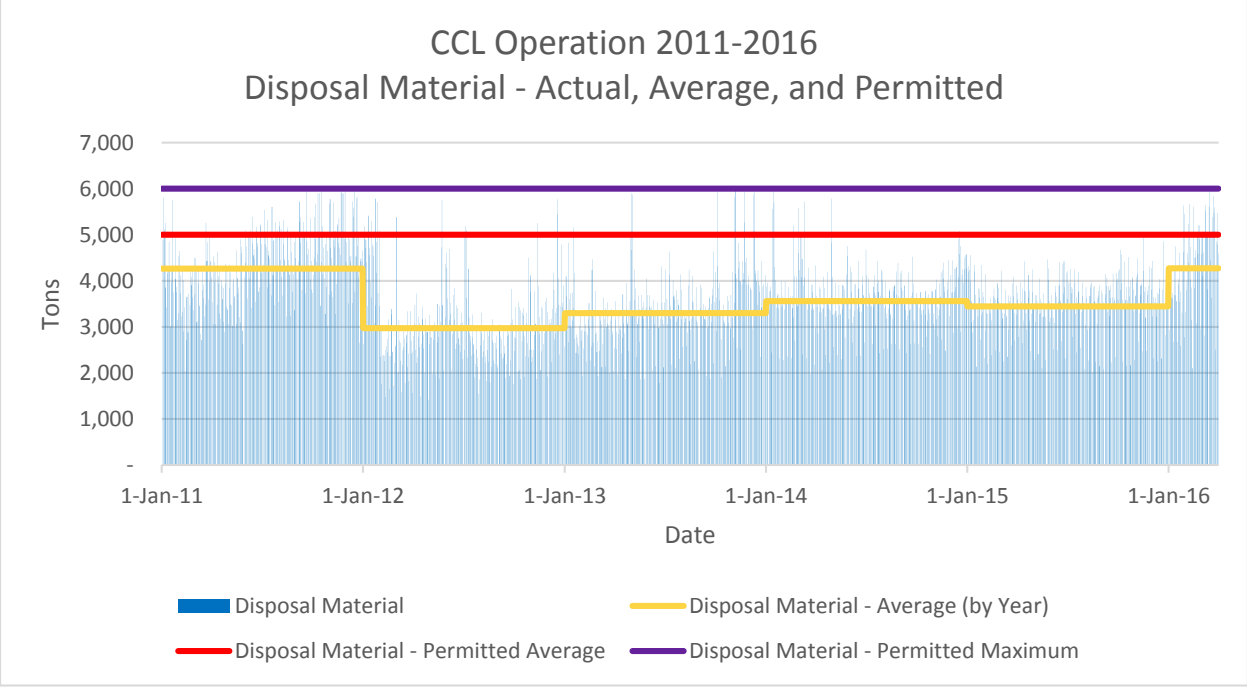



Chart 1-2. Disposal Material
*CCL Operation 2011-2016*

## 1.7.2 Beneficial Use Material

CCL is actively engaged in waste diversion activities; that is, diverting waste materials from disposal and putting them to beneficial use, as regulated through Title 27 *California Code of Regulations* and overseen by the Local Enforcement Agency (LEA; Los Angeles County Department of Health). The type and volume of materials diverted from disposal is highly variable and depends on local activities that would produce these materials. Diverted materials include the following: shredded curbside green waste, contaminated soils, treated auto shredder waste, materials recovery facility fines and construction and demolition fines, concrete and asphalt. All diverted materials are reused beneficially onsite. If more material is received at CCL than can be beneficially used onsite, it is categorized as waste disposed.

In addition to materials diverted from waste disposal and beneficially used onsite, CCL also receives clean soil, which is not a waste material, but which is beneficially used onsite. Clean soil, plus materials diverted from disposal, comprise beneficial use material used at CCL. Additional information about beneficial use materials and how they are used onsite is included in Section 2.2.3.3, Beneficial Use Material, of this Partially Recirculated Draft EIR.

Beneficial use material received at CCL during the reporting period is summarized in Table 1-6 and illustrated in Chart 1-3.

Table 1-6. Beneficial Use Material
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*
*Chiquita Canyon Landfill Operation 2011-2016*

| Year | Annual (tons) | Maximum Day (tons) | Average Day (tons) |
|---|---|---|---|
| 2011[a] | 735,828 | 9,356 | 2,358 |
| 2012 | 669,972 | 6,521 | 2,244 |
| 2013 | 652,572 | 5,122 | 2,092 |
| 2014 | 869,423 | 5,681 | 2,787 |
| 2015 | 764,360 | 6,492 | 2,450 |
| 2016 Q1 | 263,573 | 8,450 | 3,238 |

[a] 2011 is the baseline year, as described in Section 1.5, Clarification of Operational Baseline.

Chart 1-3 shows the variability of beneficial use material received at CCL throughout the reporting period.

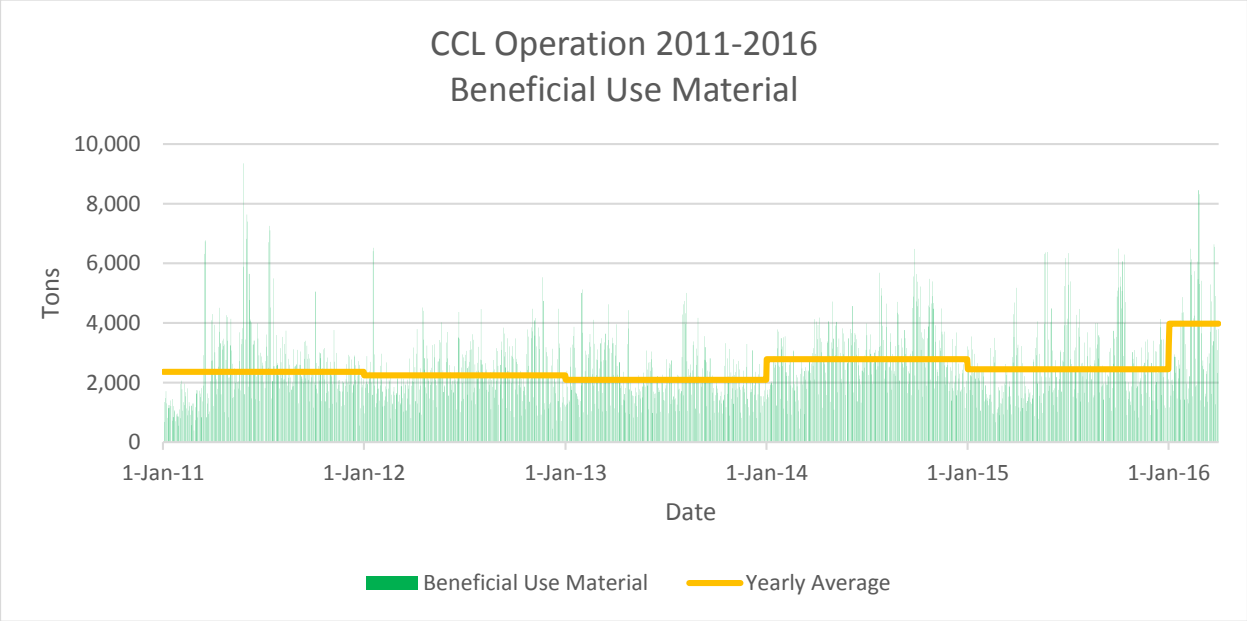



Chart 1-3. Beneficial Use Material
*CCL Operation 2011-2016*

## 1.7.3 Combined Waste Disposal Material and Beneficial Use Material

Review of the combined quantities of waste disposal material and beneficial use material provides a comprehensive representation of recent operational conditions at CCL. The combined variability of waste disposal material and beneficial use material resulted in averages that have ranged from 5,214 tons per day in 2012 to 7,510 tons per day in Q1 2016. The combined quantities of waste disposal material and beneficial use material received at CCL during the reporting period are summarized in Table 1-7 and illustrated in Chart 1-4.

Table 1-7. Combined Waste Disposal Material and Beneficial Use Material
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*
*Chiquita Canyon Landfill Operation 2011-2016*

| Year | Annual (tons) | Maximum Day (tons) | Average Day (tons) |
|---|---|---|---|
| 2011[a] | 2,066,138 | 12,273 | 6,622 |
| 2012 | 1,626,836 | 11,702 | 5,214 |
| 2013 | 1,681,898 | 8,352 | 5,391 |
| 2014 | 1,979,629 | 9,621 | 6,344 |
| 2015 | 1,839,567 | 10,839 | 5,896 |
| 2016 Q1 | 585,750 | 13,657 | 7,510 |

[a] 2011 is the baseline year, as described in Section 1.5, Clarification of Operational Baseline.

Chart 1-4 shows the combined quantities of waste disposal material and beneficial use material received at CCL throughout the reporting period.

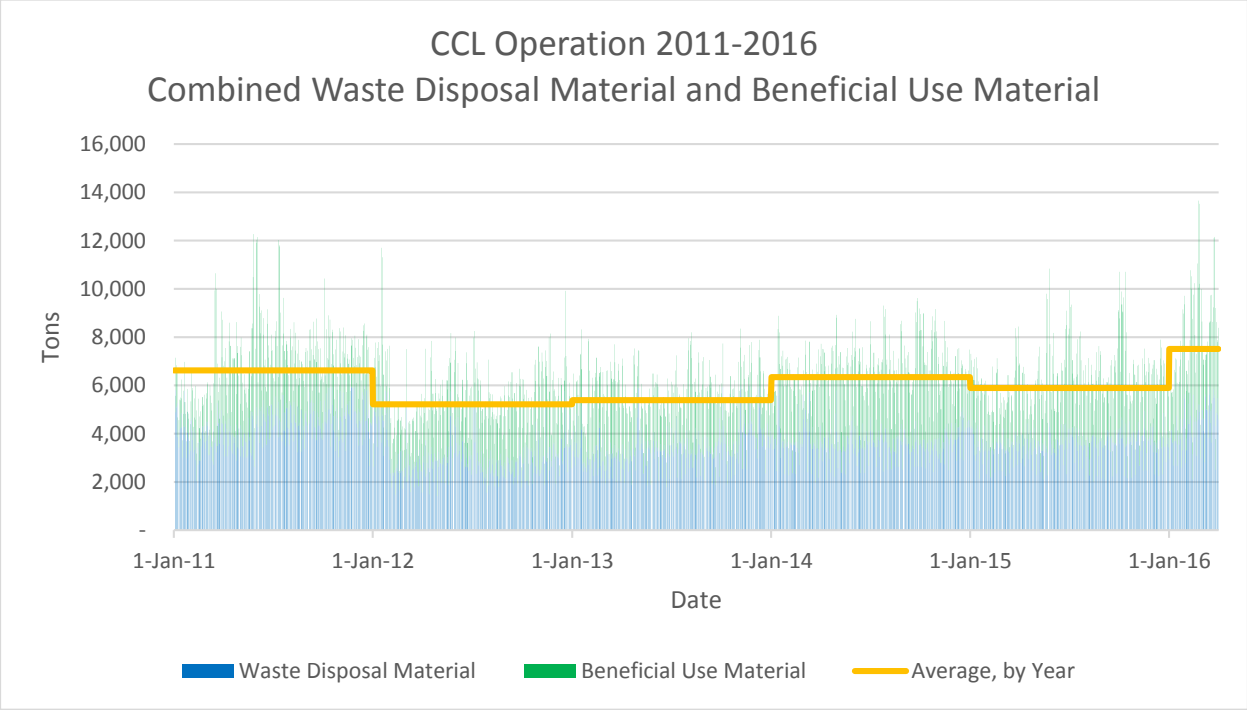



**Chart 1-4. Combined Waste Disposal Material and Beneficial Use Material**
*CCL Operation 2011-2016*

## 1.7.4 Truck Trips

Disposal material and beneficial use material are delivered to CCL by a variety of truck types, from garbage route trucks, dump trucks, and 18 wheelers to individuals with pick-up truck loads.

Because the daily tonnage of disposal material and beneficial use material received at CCL is variable, so is the number of trucks entering the site on any given day. Actual daily truck trips received at CCL associated with disposal material and beneficial use material are summarized below in Table 1-8 and illustrated in Chart 1-5. The table and chart do not include vehicles that are not processed through the scale house, such as employee vehicles or construction vehicles for periodic cell construction.

**Table 1-8. Truck Trips**
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*
*Chiquita Canyon Landfill Operation 2011-2016*

| Year | Daily High | Daily Average |
|---|---|---|
| 2011[a] | 660 | 403 |
| 2012 | 628 | 342 |
| 2013 | 561 | 355 |
| 2014 | 576 | 392 |
| 2015 | 622 | 370 |
| 2016 Q1 | 773 | 489 |

[a] 2011 is the baseline year, as described in Section 1.5, Clarification of Operational Baseline.

Chart 1-5 shows actual daily truck trips associated with disposal material and beneficial use material received at CCL throughout the reporting period.

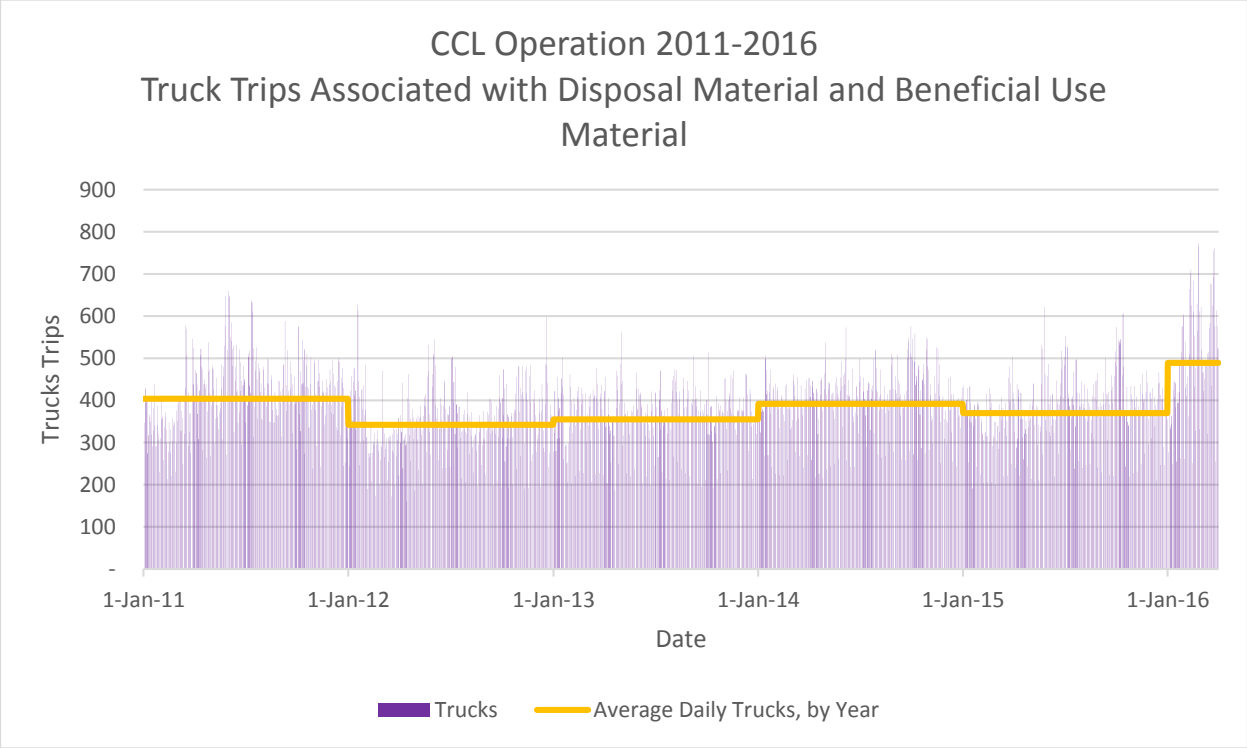



**Chart 1-5. Truck Trips**
*CCL Operation 2011-2016*

# 1.8 Environmental Review Process

## 1.8.1 Intended Uses of the Original Draft EIR and Partially Recirculated Draft EIR

The *CEQA Guidelines* require that state and local government agencies, as well as special districts, consider the environmental consequences of projects over which they have discretionary authority before taking action on them. For proposed projects that may have potential significant adverse environmental effects, an EIR must be prepared. This Partially Recirculated Draft EIR has been prepared in accordance with the *CEQA Guidelines* for the implementation of CEQA published by the Resources Agency of the State of California (*California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000-15387 and Appendices A-K).

The Original Draft EIR and this Partially Recirculated Draft EIR will be used by various local and state agencies in their consideration of actions required to: (1) approve; (2) approve with conditions or modifications; or (3) deny the Proposed Project. The Original Draft EIR and this Partially Recirculated Draft EIR are intended to provide the public, agencies, and decision makers with a comprehensive analysis of the following:

- Potential environmental consequences of the Proposed Project
- Potential mitigation measures to avoid or significantly lessen environmental impacts that would otherwise be significant
- A reasonable range of alternatives to the Proposed Project

The level of technical detail, evaluation, and analysis provided in the Original Draft EIR and this Partially Recirculated Draft EIR is consistent with the *CEQA Guidelines d*escribed above and is sufficient to provide an understanding of potential impacts.

### 1.8.2 Public Scoping Process

The first step of the EIR preparation was the distribution of the NOP for the Proposed Project to facilitate scoping. The NOP was sent to responsible public agencies and interested parties. The NOP, released on November 21, 2011, included a summary of the Proposed Project and an invitation to submit comments on the content of the Draft EIR. A number of responses were received from various agencies. In addition, comment letters were received from members of the Union de Residentes Para La Proteccion Ambiental de Val Verde and Val Verde Civic Association. The NOP and associated response letters are found in Appendix A of the Original Draft EIR. The following agencies/parties responded to the NOP:

- California Department of Fish and Wildlife (CDFW)
- California Department of Resources Recycling and Recovery (CalRecycle)
- LACDPW
- County of Los Angeles, Fire Department
- County of Los Angeles, Metropolitan Transportation Authority
- County of Ventura, Air Pollution Control District
- County of Ventura, Public Works Agency, Transportation Department
- County of Ventura, Watershed Protection District
- Native American Heritage Commission
- Santa Clarita Organization for Planning and the Environment (SCOPE)
- Stuart Abramson (resident of Val Verde)
- Nancy Carder (community member)
- Thomas Leeb (resident of Val Verde)
- Raul Lejano (member of Union de Residentes Para La Proteccion Ambiental de Val Verde)
- Marc Salzarulo (resident of Val Verde)
- Scott Wardle (former President of the Castaic Town Council)

### 1.8.3 Agencies and Interested Parties Consulted

The following agencies/parties were consulted as part of the scoping process:

<u>Federal Agencies</u>

- National Park Service, Santa Monica Mountains National Recreational Area
- Angeles National Forest
- United States Postal Service
- United States Army Corps of Engineers

<u>State Agencies</u>

- California Department of Conservation, Division of Oil, Gas, and Geothermal Resources
- CDFW
- State Lands Commission
- California Department of Parks and Recreation
- California Regional Water Quality Control Board (RWQCB), Los Angeles Region
- Caltrans District 7, Intergovernmental Review/CEQA Coordinator
- California Department of Public Health

- California Department of Food and Agriculture
- CalRecycle, Integrated Waste Management, Permitting, and Enforcement Division
- California Department of Water Resources

Regional, County, City

- Los Angeles County Clerk
- County of Los Angeles, Environmental Health, Environmental Hygiene Program
- County of Los Angeles, Environmental Health, Solid Waste Management Program
- County of Los Angeles Fire Department, Forestry Division, Prevention Bureau
- LACDPW
- County of Los Angeles, Department of Parks and Recreation, Planning Division
- County of Los Angeles Sanitation Districts
- South Coast Air Quality Management District (SCAQMD)
- Los Angeles County Integrated Waste Management Task Force
- County of Kern, Planning and Community Development
- Ventura County, Planning Division
- City of Los Angeles, Planning Department
- City of Santa Clarita, Planning Commission
- Southern California Association of Governments
- Metropolitan Transit Authority, County Wide Planning

Interested Parties

- Rosemary Woodlock, Save Open Space
- Santa Clarita Civic Association
- SCOPE
- Santa Clarita Oak Conservancy
- Sierra Club
- United Water Conservation District
- California Native Plant Society
- Castaic Area Town Council
- Castaic Lake Water Agency
- Valencia Water Company
- Castaic Chamber of Commerce
- Friends of the Santa Clara River
- Val Verde Community Benefits Funding Committee
- Communities for a Better Environment
- Union de Residentes Para La Proteccion Ambiental de Val Verde
- Val Verde Civic Association
- Val Verde Community Advisory Committee
- Santa Clarita Civic Association

### 1.8.4 Circulation of the Original Draft EIR

Upon completion, the Original Draft EIR was submitted to the State Clearinghouse for distribution to interested state agencies and circulated for public review and comment. Hard copies of the Original Draft EIR were made available at the LADRP office, the Castaic Library, Valencia Public Library, and the Old Town Newhall Library. An electronic version of the Original Draft EIR was posted on the County's website. The official public review period of 45 days ran from July 10 to August 23, 2014. The public comment period was extended by 30 days, ending on September 23, 2014. The public comment period was subsequently extended by an additional 30 days, with a final end date of October 23, 2014, a total

review period of 105 days. Written comments were accepted by LADRP during the public review period and verbal comments were received at a public Hearing Examiner meeting held by the LADRP on July 31, 2014 in Castaic, California.

### 1.8.5 Circulation of the Partially Recirculated Draft EIR

This Partially Recirculated Draft EIR has been submitted to the State Clearinghouse for distribution to interested state agencies and circulated for public review and comment. Hard copies of this Partially Recirculated Draft EIR have been made available at the LADRP office, the Castaic Library, Valencia Public Library, and Stevenson Ranch Library. An electronic version of this Partially Recirculated Draft EIR has been posted on the County's website. Written comments will be accepted and verbal comments will be received at a public Hearing Examiner meeting held by LADRP. Per the requirements of CEQA, responses will be prepared for all comments received on the Partially Recirculated Draft EIR. A Final EIR will be prepared, which will include responses to comments received on the Original Draft EIR and this Partially Recirculated Draft EIR, as well as any changes to the Original Draft EIR or Partially Recirculated Draft EIR necessitated by the comments themselves. The Final EIR will be considered for certification by LADRP. Thereafter, the certified Final EIR will be used by agencies in permitting the Proposed Project.

## 1.9 Project Approvals

### 1.9.1 Regulatory Compliance – Framework for Class III Landfills

Class III landfills in California are regulated on multiple jurisdictional levels by local, state, and federal agencies. Compliance with the regulations of each of these agencies is necessary for the approval of the proposed landfill extension and/or monitoring the operation and closure of the facility. Local regulatory enforcement is performed by the Los Angeles County Department of Public Health, also known as the LEA; LADRP; LACDPW; RWQCB, Los Angeles Region; the Los Angeles County Solid Waste Management Committee/Integrated Waste Management Task Force; and SCAQMD. Each of these local agencies is involved in issuing permits that condition the operation and/or closure of the landfill.

The California Integrated Waste Management Act (IWMA) of 1989 (Assembly Bill 939) requires counties to prepare a CIWMP and mandates a minimum 50 percent volume reduction in solid waste being landfilled by 2000. Compliance with the IWMA is the responsibility of local jurisdictions. Later legislation mandates the 50 percent diversion requirement be achieved every year (CalRecycle, 2012).

Even with achievement of a 50 percent reduction in landfilled waste, the California legislature recognized that additional landfill capacity is required. Thus, the IWMA also requires counties to secure long-term (15 years) disposal capacity for waste that cannot be diverted. To conserve critical landfill space, it is CalRecycle policy to maximize the use of existing landfills, where feasible and environmentally acceptable.

The IWMA also requires development of countywide siting elements and solid waste facility components as part of the CIWMP to assure that locations exist for environmentally safe transformation and disposal facilities for waste that cannot feasibly be reduced, recycled, or composted. Availability of waste disposal capacity, however, does not relieve local jurisdictions from their responsibility for source reduction required by the IWMA.

Solid waste management in Los Angeles County is regional in nature and is guided by local policy carried out in accordance with federal, state, and local statutory and regulatory requirements.

## 1.9.2 Federal, State, and Local Approvals

Table 1-9 identifies permits and approvals that may be applicable to the Proposed Project. Many of these permits apply to the existing CCL and may need to be amended for implementation of the Proposed Project. Although a number of agencies are identified, discussions with those agencies will be required to determine the specific nature of any future permits or approvals that may be required from those agencies. Their inclusion in this document is intended to acknowledge the possible role of those agencies and ensure their notification. In addition, reference to these agencies is intended to provide them and the public with an environmental basis under *CEQA Guidelines* to facilitate the dissemination of information deemed necessary to the discretionary approvals process and the approval or conditional approval of any aspect of the Proposed Project within their jurisdiction.

Table 1-9. Project Permits and Approvals
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Agency | Permit or Approval |
|---|---|
| **Federal** | |
| United States Army Corps of Engineers | Clean Water Act, Section 404 |
| **State** | |
| State of California Department of Food and Agriculture | Certificate of Approval for Weighing Devices |
| State of California Industrial Relations | Air Pressure Tank Permit |
| State Water Resources Control Board | Stormwater Discharge Permit<br>Stormwater Pollution Prevention Plan (SWPPP)<br>Stormwater Monitoring Program (SWMP) |
| CDFW | Agreement Regarding Proposed Lake or Streambed Alteration |
| RWQCB | Waste Discharge Requirements<br>National Pollutant Discharge Elimination System (NPDES) |
| California Department of Food and Agriculture | Weighmaster License |
| California Department of Transportation | Potential offsite improvements at State Route-126 and Wolcott Way |
| CalRecycle | Solid Waste Facilities Permit |
| **Local** | |
| RWQCB, Los Angeles Region | Conditional Certification – Sedimentation Basin #1 |
| SCAQMD | Permit to Construct/Operate a Landfill Condensate and Leachate Collection incorporated in Title V |
| | Permit to Construct/Operate a Landfill Gas Collection System incorporated in Title V |
| | Permit to Construct/Operate a Landfill Gas Flare incorporated in Title V |
| | Title V Permit (incorporates all previous SCAQMD permits) |
| | Rule 431.1 Alternative Monitoring Plan for CCL |

### 1.9.3 County of Los Angeles Approvals

County of Los Angeles permits and approvals that may be applicable to the Proposed Project include but are not limited to the following:

County of Los Angeles

- Above and/or Below Ground Tank Permits
- Waste Disposal Facility Business License Tax Registration Certificate
- Weights and Measures Registration Permit
- CUP/Mitigation Monitoring Program
- Solid Waste Management Committee/Integrated Waste Management Task Force (Finding of Conformance with the Los Angeles County Countywide Siting Element)
- Solid Waste Facilities Permit

Los Angeles County Department of Public Works

- Grading, Drainage, and Building Permits
- Offsite Encroachment Permits
- Industrial Waste Disposal Permit – Leachate and Condensate
- Industrial Waste Disposal Permit – Wash Pad Water

Los Angeles County Fire Department

- Los Angeles County Certified Unified Program Agency
- Consolidated Unified Program Los Angeles County Fire Department

## 1.10 Content and Organization of Original Draft EIR and Partially Recirculated Draft EIR

### 1.10.1 Content and Organization of Original Draft EIR

The Original Draft EIR was organized into the following chapters:

- **Executive Summary.** The Executive Summary provides a brief summary of the Proposed Project purpose, description, major findings, and conclusions; it also includes a summary of Proposed Project impacts and mitigation.
- **Chapter 1.0, Introduction.** This chapter provides an overview of the Proposed Project background, purpose, objectives, and need; intended uses of the Draft EIR; the public scoping process and circulation of the Draft EIR; project approvals; and presents the general content and organization of the Draft EIR.
- **Chapter 2.0, Project Description.** This chapter describes the Proposed Project location and existing surrounding land uses and provides a detailed description of the Proposed Project, including the proposed facilities, lateral extension, increased elevation and disposal limits, wastes to be received, operation, design features, environmental monitoring, and ancillary uses. This chapter also addresses landfill closure and post-closure plans.
- **Chapter 3.0, General Setting and Resource Area Analysis.** This chapter discusses the general setting; the existing and approved CCL facilities; the organization and general content of the resource area chapters; and a discussion of reasonably foreseeable projects in the vicinity for which cumulative impacts were evaluated.

- **Chapter 4.0 through 16.0, Resource Area Analysis.** Chapters 4.0 through 16.0 discuss the following resource areas of concern. Each chapter above includes an introduction; description of the methodology; description of the setting (regulatory and regional); analysis of potential impacts; listing and description of relevant mitigation measures; determination of significance of potential impacts after mitigation; and discussion of potential cumulative impacts.
  - Chapter 4.0, Land Use
  - Chapter 5.0, Geology and Hydrogeology
  - Chapter 6.0, Surface Water Drainage
  - Chapter 7.0, Water Quality
  - Chapter 8.0, Biological Resources
  - Chapter 9.0, Cultural and Paleontological Resources
  - Chapter 10.0, Traffic and Transportation
  - Chapter 11.0, Air Quality
  - Chapter 12.0, Greenhouse Gas Emissions and Climate Change
  - Chapter 13.0, Noise
  - Chapter 14.0, Public Services and Utilities
  - Chapter 15.0, Visual Resources
  - Chapter 16.0, Environmental Justice and Socioeconomics
- **Chapter 17.0, Other CEQA-Required Sections.** This chapter includes a discussion of:
  - Unavoidable impacts of the Proposed Project
  - Significant irreversible environmental changes
  - Growth-inducing impacts of the Proposed Project
  - Effects found not to be significant
- **Chapter 18.0, Project Alternatives.** This chapter contains a reasonable range of alternatives to the Proposed Project, including the No Project Alternative. Each alternative is analyzed for feasibility, its ability to achieve the Proposed Project objectives, and its ability to potentially avoid or substantially lessen significant environmental impacts associated with the Proposed Project.
- **Chapter 19.0, Organizations and Persons Consulted.** This chapter lists all organizations and individuals consulted for their expertise during the preparation of the Original Draft EIR.
- **Chapter 20.0, Draft EIR Preparers and Contributors.** This chapter lists the primary authors and technical specialist for each resource area who contributed to preparation of the Original Draft EIR.
- **Chapter 21.0, References and Bibliography.** This chapter lists references and resources used in preparation of the various chapters of the Original Draft EIR.
- **Appendixes.** The following appendixes to the Original Draft EIR are included:
  - Appendix A: NOP/Initial Study
  - Appendix B: Mitigation Monitoring Plan from the Statewide Anaerobic Digester Facilities for the Treatment of Municipal Organic Solid Waste Program EIR
  - Appendix C: Hydrogeologic Report
  - Appendix D: Geotechnical Investigation
  - Appendix E: Biota and Oak Tree Reports
  - Appendix F: Cultural Resources
  - Appendix G: Traffic Analysis
  - Appendix H: Air Quality
  - Appendix I: Noise
  - Appendix G: Water Supply Assessment
  - Appendix K: LACDPW 2011 Annual Report

## 1.10.2 Content and Organization of Partially Recirculated Draft EIR

This Partially Recirculated Draft EIR is organized into the following chapters:

- **Executive Summary.** The Executive Summary provides a brief summary of the Partially Recirculated Draft EIR, including updated potential impacts associated with biological resources, air quality, and greenhouse gas emissions and climate change.
- **Chapter 1, Introduction.** This chapter provides an updated discussion of the previous, current, and proposed permits for CCL, project purpose and objectives and project need. This chapter also includes a clarification of the operational baseline for the Proposed Project; a discussion of the operational baseline compared to the Proposed Project; an overview of the recent operation of CCL; a discussion of the environmental review process and the public scoping process and circulation of the Original Draft EIR and Partially Recirculated Draft EIR; and presents the general content and organization of the Draft EIR and Partially Recirculated Draft EIR.
- **Chapter 2, Project Description.** This chapter describes the Proposed Project location and existing surrounding land uses and provides an updated detailed description of the Proposed Project, including the proposed facilities, lateral extension, increased elevation and disposal limits, material to be received, operation, design features, environmental monitoring, and ancillary uses. This chapter also addresses landfill closure and post-closure plans.
- **Chapters 4 through 16, Resource Area Analysis.** Of these chapters, only chapters 8, 11, and 12 have been revised and are included in the Partially Recirculated Draft EIR. Each chapter includes an introduction; description of the methodology; description of the setting (regulatory and regional); analysis of potential impacts; listing and description of relevant mitigation measures; determination of significance of potential impacts after mitigation; and discussion of potential cumulative impacts.
- **Chapter 18, Project Alternatives.** This chapter has been revised to contain an expanded evaluation of alternatives to the Proposed Project, including the No Project Alternative. Each alternative is analyzed for feasibility, its ability to achieve the Proposed Project objectives, and its ability to potentially avoid or substantially lessen significant environmental impacts associated with the Proposed Project.

**Appendixes.** The following appendixes to the Partially Recirculated Draft EIR have been revised from those included in the Original Draft EIR and are included:

- Appendix E: Biological Resources
- Appendix H: Air Quality

This Partially Recirculated Draft EIR also includes two supplements that are intended to provide additional information about the Proposed Project, but which do not result in additional environmental impacts as a result of the Proposed Project. These sections are:

- **Visual Resources Supplement.** This supplement includes additional and revised existing condition photographs of the Proposed Project and additional and revised visual simulations of the Proposed Project.
- **Traffic Supplement.** This supplement provides clarification to the Traffic Analysis included in the Original Draft EIR with regard to the number of trucks included in the operational baseline. The supplement also includes an updated queuing analysis for the relocated site entrance included as part of the Proposed Project that reflects the number of trucks included in the operational baseline for the Proposed Project.

# 1.11 References

California Department of Resources Recycling and Recovery (CalRecycle). 2012. Available online at: http://www.calrecycle.ca.gov/lgcentral/enforcement/. Accessed November 2012.

County of Los Angeles Department of Public Works (LACDPW). 2015. *County of Los Angeles Countywide Integrated Waste Management Plan 2014 Annual Report, Countywide Summary Plan & Countywide Siting Element.* December.

CHAPTER 2

# Project Description

The Chiquita Canyon Landfill (CCL) Master Plan Revision (Proposed Project) is described in detail in this chapter. The location of the Proposed Project is described in Section 2.1. Specific elements of the Proposed Project are addressed in Section 2.2. Section 2.3 addresses landfill closure and post-closure.

## 2.1 Introduction

CCL, located in the northwestern portion of unincorporated Los Angeles County, is approximately 3 miles west of the intersection of Interstate 5 (I-5) and State Route 126 (SR-126) (Figure 1-1). The site is located in Section 15, Township 4 North, Range 17 West, San Bernardino Baseline and Meridian. The site latitude and longitude are 34°25'N and -118°39'E, respectively. The address for CCL is 29201 Henry Mayo Drive, Castaic, California 91384. The site consists of four County Assessor parcels; the assessor parcel numbers are: 3271-002-011, 3271-002-019, 3271-002-034, and 3271-002-013.

CCL is located within the planning area of the City of Santa Clarita, but outside its city limits and sphere of influence. The landfill site is also located within the Santa Clarita Valley Area Plan of the Los Angeles County General Plan and in the Castaic Area Community Standards District.

Much of the area surrounding CCL consists of undeveloped open space as a result of steep topography. Surrounding land uses include primarily open lands to the north and rural residential development to the west and northwest along Chiquito Canyon Road and in the Val Verde area. The closest of these residential dwellings is located approximately 500 feet from the northwest site boundary and 1,200 feet from the landfill footprint, and intervening topography prevents residential views of the operating landfill from these locations. The United States Postal Service has a general mail facility adjacent to the eastern edge of the landfill property boundary. The property immediately west and south of the landfill is owned by the Newhall Land and Farming Company and is currently either vacant or used for agricultural activities.

Limited suburban residential areas are located further to the northeast, and industrial/commercial uses are also located further to the northeast, east, and southeast. Oil extraction fields and associated storage areas are located less than 1 mile from the landfill to the west and south. Valencia Travel Village, a short- and long-term recreational vehicle resort, is located approximately 1 mile east of the landfill on the south side of SR-126.

## 2.2 Project Elements

The Proposed Project includes the following elements:

- Development of new entrance and support facilities, including the relocation of a portion of Southern California Edison's (SCE) existing Saugus-Elizabeth Lake-Fillmore 66 kilovolt (kV) Subtransmission Line in order to accommodate landfill improvements (Section 2.2.1)
- Better utilization of the landfill's potential disposal capacity through a lateral extension of the existing waste footprint and increased maximum elevation (Section 2.2.2)
- Acceptance of all nonhazardous wastes permitted at a Class III solid waste disposal landfill, exclusive of sludge, and continued acceptance of beneficial use material (Section 2.2.3)
- Increased daily and weekly disposal limits (Section 2.2.4)

- Continued periodic construction activities within the landfill footprint (Section 2.2.5)
- Continued and expanded operation of the landfill (Section 2.2.6)
- Incorporation of landfill design features to accommodate the increase in landfill volume (Section 2.2.7)
- Continued and expanded environmental monitoring (Section 2.2.8)
- Development of a Household Hazardous Waste Facility (HHWF) (Section 2.2.9)
- Restarting a previously-approved green waste processing/composting operation that accommodates mixed organics (Section 2.2.10)
- Set-aside of land for potential future conversion technology (Section 2.2.11)
- Continued operation of a Landfill Gas-to-Energy (LFGTE) Plant operated by Ameresco and permitted by the County of Los Angeles (Section 2.2.12)

Each of these project elements is described in detail below.

## 2.2.1 Entrance and Support Facilities

### 2.2.1.1 Summary

| Environmental Baseline | Proposed Project | Change |
|---|---|---|
| Entrance and support facilities presently located onsite | Entrance and support located onsite, but relocated | Entrance and support facilities located in a new location(s) onsite |

### 2.2.1.2 Detailed Discussion

CCL is located on the north side of SR-126, a four-lane paved highway running east-west along the southern boundary of CCL. As part of the Proposed Project, the primary landfill entrance will be located at Wolcott Way, as shown in Figure 2-1. Vehicles traveling to the site will turn from SR-126 onto Wolcott Way, which is a signalized intersection, and then west into the new landfill entrance. The new entrance location will provide a safe entrance and exit from the landfill.

Access to the site will be controlled by a gate located at the entrance, along with a video surveillance system for security. In addition to the access gate, existing (and proposed) perimeter fencing prevents unauthorized access and warning signs are attached to the fencing. The terrain and location of the site limits its accessibility to unauthorized entry from areas other than the SR-126 entrance. Security fencing between the landfill and the adjacent United States Postal Service facility prevents access to the landfill from the postal facility and vice versa.

Signage similar to the existing signs will be provided, identifying the facility, hours of operations, tipping fees, and notification of unacceptable wastes. The signs will continue to provide appropriate contact information for relevant permitting agencies.

Once through the gate, vehicles will enter the facility via a new entrance road to reach the scale house and administrative offices, as shown in Figure 2-1. The new entrance road will extend west from Wolcott Way and will provide additional onsite queuing space for landfill customers—more than 1,000 feet of multi-lane queuing (compared to the existing 400 feet of queuing length) to ensure that vehicles are able to queue onsite. The new entrance will include administration buildings, a scale house, scales, and parking. A combination of landscaped screening berm and screening wall along the perimeter of the entrance facilities will screen views from SR-126 and Wolcott Way.

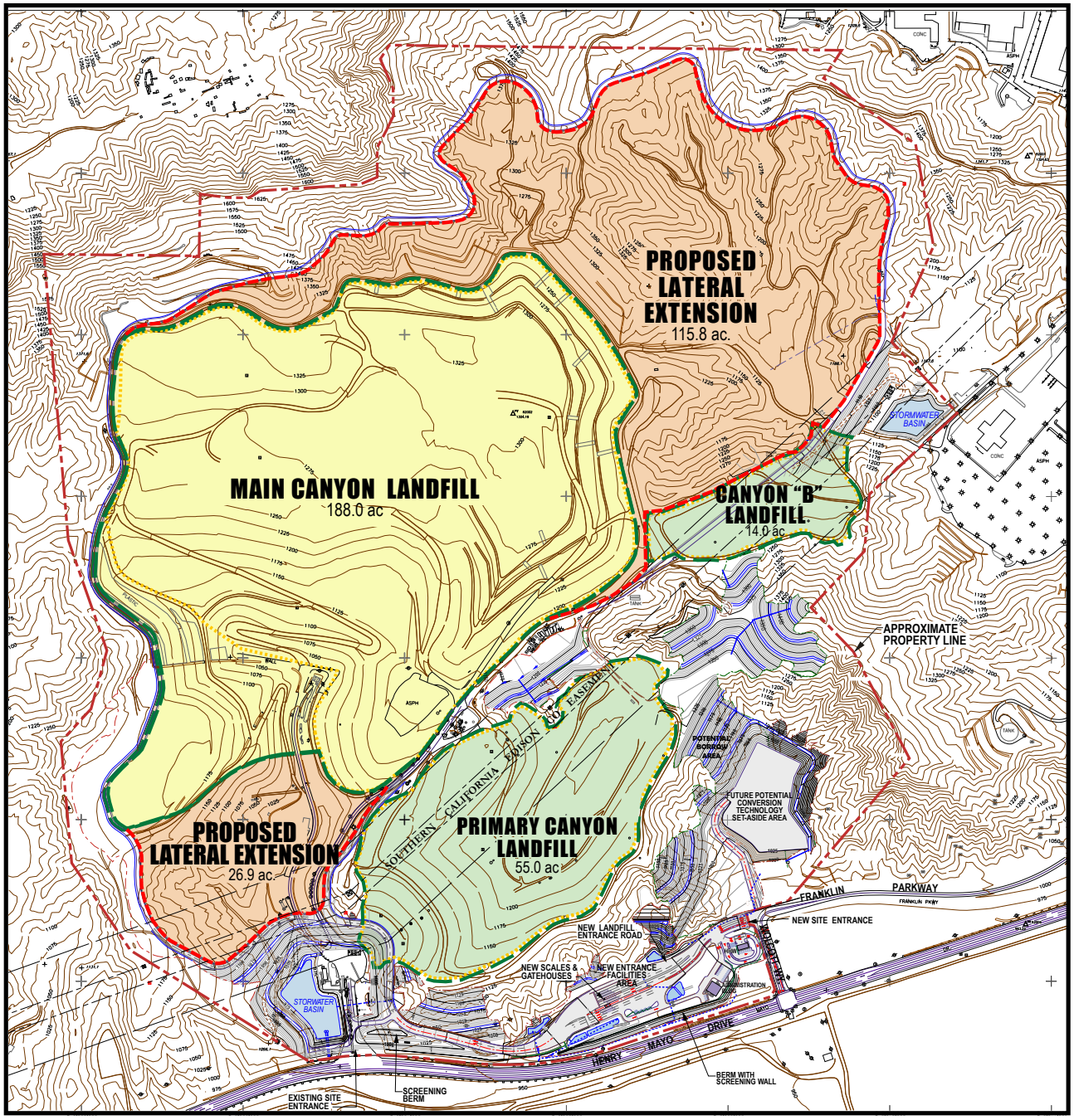



**Figure 2-1.**
**Existing and Proposed Landfill Footprint**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Source: Golder Associates, 2014

The area along Wolcott Way between SR-126 and the site entrance will require street lighting. The light fixtures installed here will meet County standards and will be similar in design and appearance to lighting along SR-126 and at nearby commercial developments. This lighting will have full cutoff design and will be directed to the roadway. The LACDPW Traffic and Lighting division may require CCL to annex the landfill site into a Lighting Maintenance District for installation and maintenance of the street lighting. Lighting for the new entrance facilities will be limited, consisting of several low wattage fixtures on the administration building; pole lights and low wattage fixtures at the scale house; and pole lights and low wattage fixtures at the shop area. All of these fixtures will be fully shielded and designed to direct the light downward and limit illumination to only the areas where the light is needed. Other than the street lights at the site entrance, light fixtures and lights are anticipated to be shielded from view by the berm and landscaping that will be installed along the eastern and southern sides of the entrance area. While CCL is not within the boundary of the Los Angeles County Rural Outdoor Lighting District, lighting will be designed to be consistent with the lighting provisions of the County ordinance, as feasible.

The entrance will include four inbound scales, with the future ability to increase to six, and two outbound scales. The scale house will continue to serve as an initial waste-control screening point and as a fee and waste stream data collection point (e.g., tonnage, customer, and jurisdictional generator). The method of processing vehicles at the scales will remain the same as the current process. Attendants at the scale house monitor incoming and outgoing traffic. Trucks wait in front of the scale until signaled to pull onto the scale. Trucks are weighed and the drivers sign a weigh ticket before proceeding. Non-waste-hauling vehicles may use a bypass lane to enter the site, if there are trucks on or waiting for the scales. After processing at the scale house, vehicles proceed on a paved access road to the perimeter of the existing landfill. From there, vehicles will be directed to the active disposal area.

Speed bumps along the access road limit vehicle speeds, which keeps people safe and controls dust. “Rumble strips” along the outbound lanes of the access road help remove dirt and mud from exiting vehicles, minimizing dirt and mud being tracked onto Wolcott Way. The rumble strips also limit vehicle speeds as vehicles leave the site. Vehicles that do not have tare weights on file are required to stop to be weighed at the exit scale before leaving the site.

The California Department of Transportation (Caltrans) is proposing to widen SR-126 from four lanes to eight lanes. The entrance facility layout takes into account the widening based on currently available information from Caltrans. As Caltrans continues to refine the SR-126 widening design, it may be necessary to modify the entrance facility design. For example, a wall may replace the screening berm along the site frontage due to space constraints.

SCE’s existing Saugus-Elizabeth Lake-Fillmore 66 kV Subtransmission Line currently runs parallel to SR-126 near CCL in an existing easement that is set back in locations ranging from approximately 100 to 300 feet north of SR-126. In order to accommodate the Proposed Project, CCL has requested SCE to relocate an approximately 3,260-foot portion of the 66 kV line between the east side of Wolcott Way to a location approximately 880 feet west of the current CCL entrance. The current and proposed locations of the 66 kV line is shown in Figure 2-2. The portion of the existing 66 kV line to be relocated consists of approximately 7 wood poles and approximately 2 wood “H-frame” structures, which range in height between 60 and 80 feet. The 66 kV line will be relocated approximately 100 to 500 feet to the north of the existing 66 kV line into a new easement to be provided by CCL. SCE anticipates that the relocated 66 kV line will consist of approximately eight to ten new lightweight steel and/or tubular steel poles, which will range in height between 70 and 200 feet, and that the length of the relocated line will be approximately 3,700 feet.

## 2.2.2 Lateral Extension of the Waste Footprint and Increased Maximum Elevation

### 2.2.2.1 Summary

| Environmental Baseline | Proposed Project | Change |
|---|---|---|
| 257 acres permitted waste footprint | 400 acres | 143 acres lateral extension |
| 251 acres current waste footprint | 400 acres | 149 acres lateral extension |
| 1,430 feet msl | 1,573 feet msl | 143 feet increase |

### 2.2.2.2 Detailed Description

For the purposes of describing the lateral extension of the waste footprint and increased maximum elevation, the Proposed Project final grading plan is compared to the No Project Alternative[1] final grading plan.

The Proposed Project will increase the waste footprint within the existing property line by approximately 149 acres by extending it slightly south toward the existing landfill entrance and to the north and east (Figure 2-1). The waste footprint will increase from approximately 251 acres to approximately 400 acres. The Proposed Project also will increase the height of the landfill by 143 feet, from 1,430 feet to a maximum elevation of 1,573 feet. The final grading plan for the Proposed Project is shown in Figure 2-3.

## 2.2.3 Type of Material to be Received

CCL receives and will continue to receive both waste disposed as well as beneficial use material. Both are described below, along with material to be received for the mixed organics processing/composting facility.

### 2.2.3.1 Waste to be Disposed

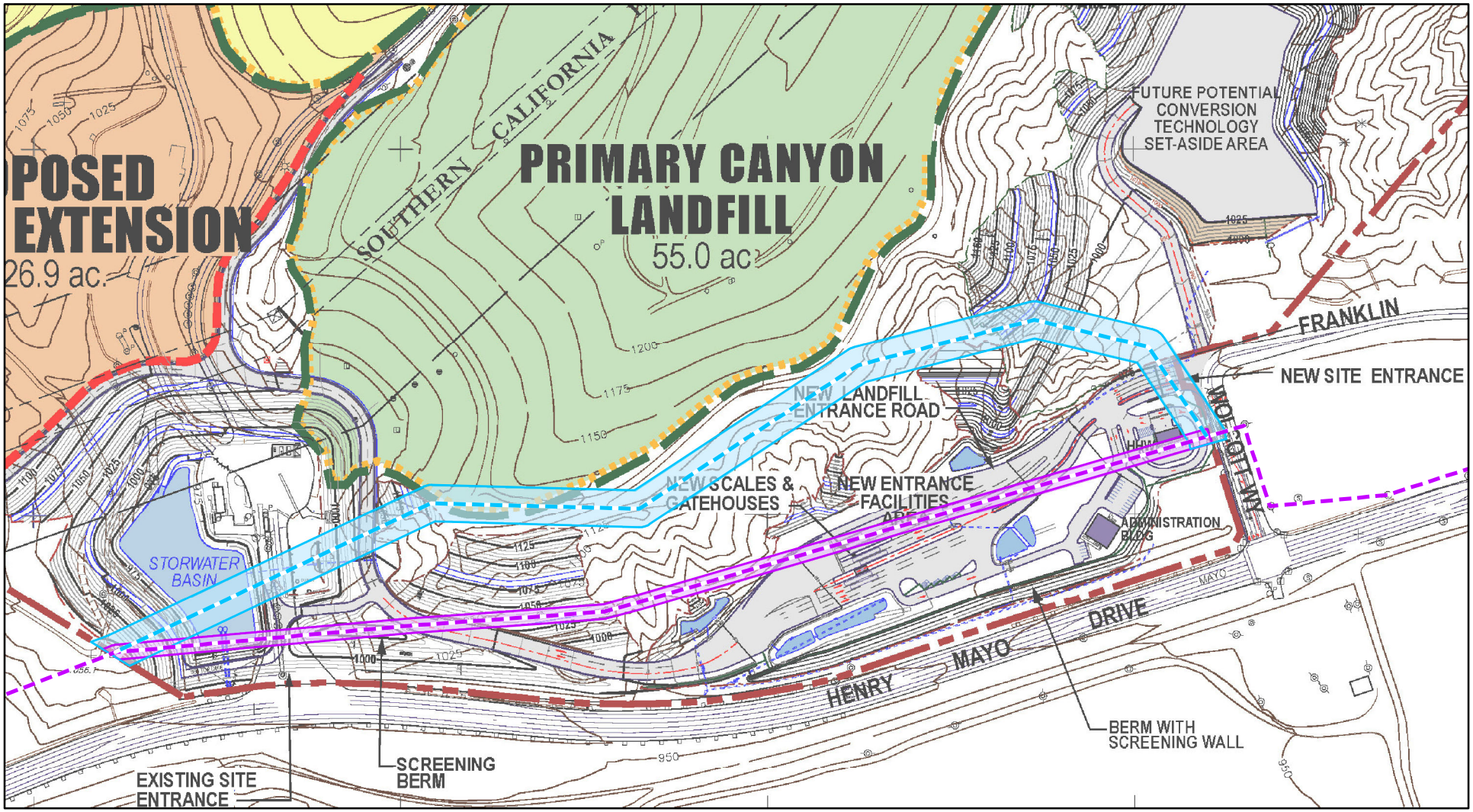
**Summary**

| Environmental Baseline | Proposed Project | Change |
|---|---|---|
| Nonhazardous solid waste, excluding sludge, as described in 27 *California Code of Regulations (*CCR) Section 20220(c) | Nonhazardous solid waste, excluding sludge, as described in 27 CCR Section 20220(c) | No change |

**Detailed Description**

In accordance with 27 CCR Section 20220, Waste Discharge Requirement (WDR) Order No. 98-086, and Solid Waste Facility Permit No. 19-AA-052 for CCL, Class III nonhazardous solid wastes and inert solid wastes are accepted for disposal at CCL. Discharge of nonhazardous contaminated soil and related wastes at CCL is currently permitted under WDR Order No. R4-11-0052.

[1] The No Project Alternative is described in Chapter 18, Project Alternatives, and shown in Figure 18-1.




***LEGEND***

**66 kV Subtransmission Line**
- Existing
- Proposed

**Right-of-Way**
- Existing
- Proposed

- Limit of Existing Landfill (4/6/10)
- Limit of Permitted Landfill
- Proposed Project Limit of Extension
- Closed Landfill Area
- Permitted Landfill Area
- Proposed Lateral Extension

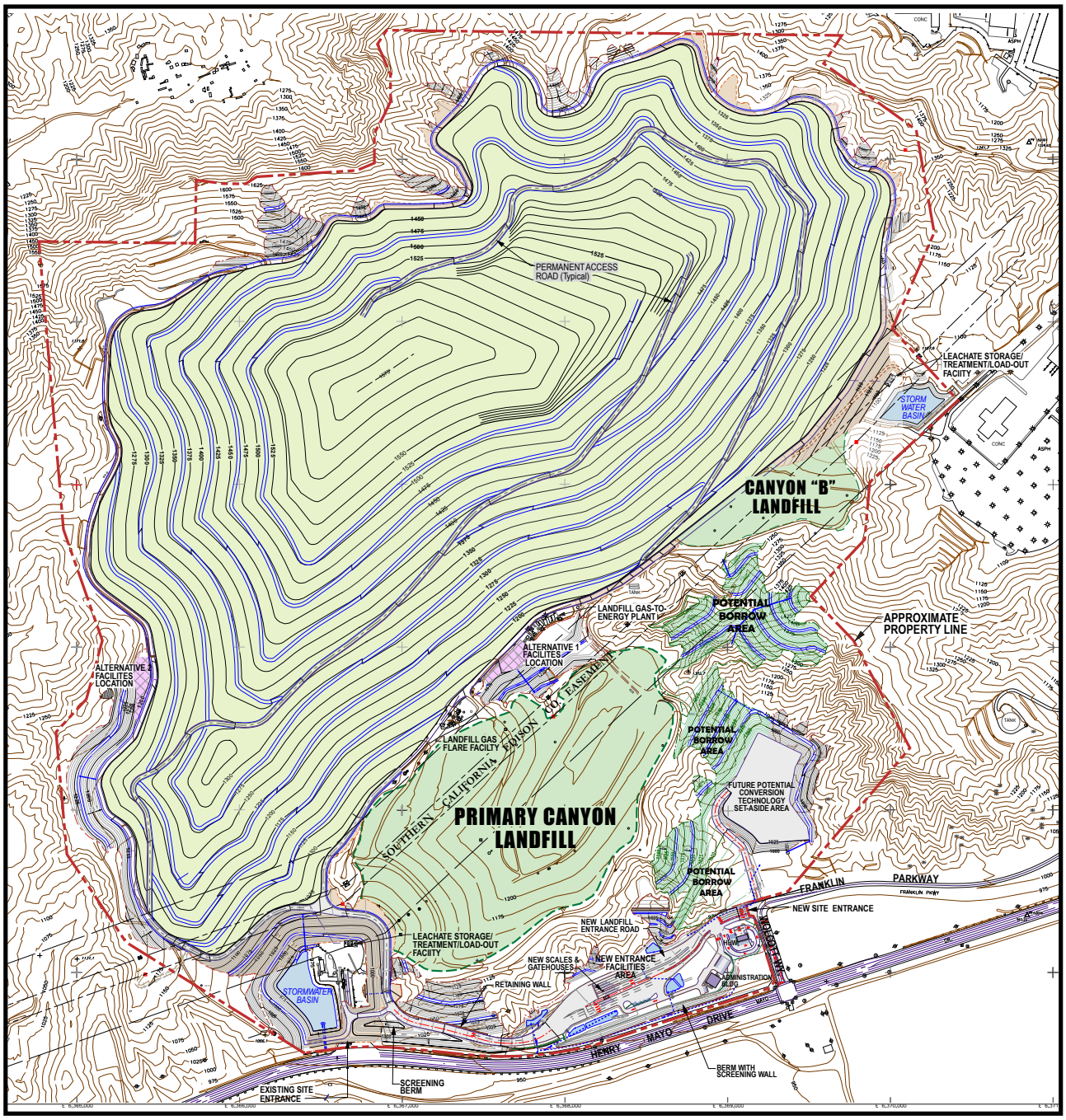
Base compiled by photogrammetric methods
by Don Read Corporation, Brea, Ca
Date of Photography: April 6, 2010
Source: Golder Associates, 2014

N

0 200 400
Feet

**Figure 2-2.**
**Existing and Proposed**
**SCE 66 kV Subtransmission Line**
*Chiquita Canyon Landfill*
*Master Plan Revision*

\\galt\proj\chiquita\MapFiles\2014\ProjDesc_TransLines.mxd




**LEGEND**

CLOSED LANDFILL AREA

N

0 400 800

Feet

**Figure 2-3.**
**Proposed Project Final Grading Plan**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Source: Golder Associates, 2014

The definition of nonhazardous solid waste from 27 CCR Section 20220 (also defined in WDR Order No. 98-086) is:

> Nonhazardous solid waste includes all putresible and nonputresible solid, semi-solid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances (except e-wastes), manure, vegetable or animal solid and semi-solid wastes, and other discarded waste (whether of solid and semi-solid consistency); provided such wastes do not contain wastes which must be managed as hazardous wastes, or wastes which contain soluble pollutants in concentrations which exceed applicable water quality objectives or could cause degradation of wastes of the state (i.e., designated waste).

Treated auto shredder waste, if nonhazardous, may also be accepted.

The applicant proposes to accept for disposal all nonhazardous wastes acceptable at a Class III solid waste disposal landfill, excluding sludge, as described in 27 CCR Section 20220(c).

#### 2.2.3.2 Mixed Organic Material

**Summary**

| Environmental Baseline | Proposed Project | Change |
|---|---|---|
| Green waste processing/composting, permitted under existing conditional use permit (CUP) until November 24, 2027, but not currently operating | Mixed organics processing and/or composting | Addition of mixed organics, in keeping with State and County goals |

**Detailed Description**

The Proposed Project includes continued green waste processing/composting operations allowed under the current CUP. The processing and composting operation that was located at the landfill since 1997 suspended operations in 2009 as a result of the economic downturn. Although it is currently inactive, CCL intends to resume operation in some manner in the future.

The feedstock for the processing/composting operation under the current CUP is limited to shredded green waste, and prohibits waste water biosolids (sludge). In addition to shredded green waste from curb-side pick up or commercial landscape operations, the Proposed Project will also include pre- and post-consumer food waste as part of a “mixed organics” composting process. Sludge will not be accepted as part of the processing/composting facility.

The mixed organics processing/composting facility is described in more detail in Section 2.2.10.

#### 2.2.3.3 Beneficial Use Material

**Summary**

| Environmental Baseline | Proposed Project | Change |
|---|---|---|
| Beneficial use material | Beneficial use material | No change |

**Detailed Description**

CCL is actively engaged in waste diversion activities; that is, diverting waste materials from disposal and putting them to beneficial use, as regulated through Title 27 CCR and overseen by the Local Enforcement Agency (LEA; Los Angeles County Department of Health). The type and volume of materials diverted from disposal is highly variable and depends on local activities that would produce these materials.

Diverted materials include the following: shredded curbside green waste, contaminated soil[2], treated auto shredder waste [TASW], materials recovery facility [MRF] fines and construction and demolition [C&D] fines, concrete and asphalt. All diverted materials are used beneficially onsite. If more material is received at CCL than can be beneficially used onsite, it is categorized as waste disposed.

In addition to materials diverted from waste disposal and beneficially used onsite, CCL also receives clean soil[3], which is not a waste material, but which is beneficially used onsite. Clean soil, plus materials diverted from disposal, comprise beneficial use material used at CCL.

A list of materials received by CCL and beneficial used, along with how the materials are typically used at CCL, is provided in Table 2-1:

Table 2-1. Beneficial Use Materials, Typical Use at CCL, and Largest 1-Day Total of Each Type
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Beneficial Use Material Type | Typical Beneficial Use at CCL | Largest 1-Day Total (Tons)[a] |
|---|---|---|
| Shredded Curbside Green Waste | Used for temporary slope stabilization, erosion control, fugitive dust control and alternative daily cover | 1,086 |
| Clean Soil[b] | Used as daily, intermediate, and final cover, as well as berms or barriers, buttresses, roadways, ramps, etc. Because it is not a solid waste material, there are no restrictions on the use of clean soil at CCL. | 1,260 |
| Contaminated Soil | Used as daily cover | 7,931 |
| Auto-Derived Products | | 1,154 |
| TASW | Used as alternative daily cover | |
| Tire Shred | Used to protect the methane gas pipeline system as trench backfill in construction of the landfill gas system | |
| Protective Cover | | 1,399 |
| MRF Fines | Used to protect methane gas wells and above-ground pipes before burial | |
| C&D Fines | Used to protect methane gas wells and above-grade pipes before burial. Also used for liner system protection. | |
| Construction and Demolition Products | | 1,916 |
| Concrete | Used to build all-weather surfaces onsite (roads and tipping pads at working face); reduces dust and water use; used for landfill gas trench construction | |
| Processed C&D Material | Used to build all-weather surfaces onsite (roads and tipping pads at working face); reduces dust and water use; used as alternative daily cover | |
| Asphalt | Used to build all-weather surfaces onsite (roads and tipping pads at working face); reduces dust and water use | 985[c] |

[a] The largest actual day of beneficial use material received at CCL was 9,356 tons on May 27, 2011.

[b] Clean soil should be distinguished from other materials used beneficially at CCL. It is not accepted or managed by the landfill as a solid waste and as such, should not be considered a material diverted from disposal.

[c] Tonnage estimated from the number of truck loads.

2 Contaminated Soil is defined as soil that has been determined, pursuant to Section 13263(a) of the California Water Code, to be a waste material that requires regulation by the RWQCB or Local Oversight Agency.

3 Clean Soil is defined as soil that is not required to be regulated as a waste by the RWQCB or Local Oversight Agency.

The combination of waste diversion, mixed organic processing/composting operation, HHWF, and future waste conversion at CCL will continue to provide a robust contribution to landfill waste diversion programs that are relied upon by many local cities and communities in achieving state-mandated goals, including Assembly Bill 939 (current 50% diversion goal) and Senate Bill 341 (75% diversion by 2020). All materials received at CCL are tracked by source and reported by origin, so that the contributing communities can track their own waste diversion success.

## 2.2.4 Rate and Volume of Material to be Received

The rate and volume of waste to be disposed and rate of all inbound material for the Proposed Project is described below.

### 2.2.4.1 Waste to be Disposed

**Summary**

| Permitted | Proposed Project | Change |
|---|---|---|
| Permitted 6,000 tons per day | Permitted 12,000 tons per day | Increase of 6,000 tons per day |
| Permitted 30,000 tons per week | Permitted 60,000 tons per week | Increase of 30,000 tons per week |

**Detailed Description**

The Proposed Project will increase daily and weekly disposal tonnage over the current permitted limits. The permitted maximum daily disposal tonnage will increase from 6,000 to 12,000 tons. As specified in the CUP, the "disposal" tonnage refers to the waste disposed only and does not include materials that are diverted from disposal or beneficially used. The permitted maximum weekly disposal tonnage will increase from 30,000 to 60,000 tons. This increase in daily and weekly disposal tonnage will allow CCL to be flexible and responsive to the current and anticipated disposal needs of the residents of the Santa Clarita Valley and the greater Los Angeles area.

The estimated total site life for the Proposed Project is 24 to 38 years. Assuming the maximum disposal rates under the Proposed Project were to begin in 2024, the landfill would reach capacity in approximately 24 years and would commence the closure process at that time. The 24-year site life assumes the disposal rate would "ramp-up" from 30,000 tons per week to 60,000 tons per week over a 7-year period. This change in tonnage received will not occur all at one time, but rather in response to increased demand over a period of time.

While a peak Proposed Project is described for worst-case analysis, the variability of past landfill operation is anticipated to continue for the Proposed Project, resulting in day-to-day operation that is lower than the peak. As such, the site life could increase to 38 years based on a continued waste disposal rate of 30,000 tons per week. The actual site life and corresponding closure date is dependent on a number of factors, including the disposal rate actually achieved over time.

CCL proposes to fully utilize the remaining capacity associated with the final grading plan (Figure 2-3). Based on a comparison of the No Project Alternative final grading plan and the Proposed Project final grading plan[4], the total airspace added by the Proposed Project would be approximately 85.7 million cubic yards (cy).

CCL will continue to operate the landfill in a manner that maximizes the amount of waste that can be placed within the available approved volume of the landfill.

[4] The final grading plan for the Proposed Project, as shown in Figure 2-3, gives the landfill a cumulative total capacity of 138 million cy, including airspace already consumed.

### 2.2.4.2 Mixed Organics Processing/Composting Material

**Summary**

| Environmental Baseline | Proposed Project | Change |
|---|---|---|
| No processing/composting activity currently | 560 tons per day | Increase of 560 tons per day |

**Detailed Description**

Under the current CUP, a composting facility is permitted to receive up to 560 tons per day, although a composting facility has not been operational at CCL since 2009. The Proposed Project includes restarting the composting operation, at a rate not to exceed 560 tons per day. Because the compost facility has not been operational since 2009, it is not included in the environmental baseline, and impacts from the compost facility are considered in this Partially Recirculated Draft EIR.

The mixed organics processing/composting facility is described in more detail in Section 2.2.10.

### 2.2.4.3 All Inbound Material

**Summary**

| Environmental Baseline | Proposed Project | Change |
|---|---|---|
| Average 6,622 tons per day | 13,182 tons per day | Increase of 6,560 tons per day |

**Detailed Description**

The Proposed Project will increase the rate of all inbound material over the current operational baseline. All inbound material consists of waste to be disposed, mixed organics compost material, and beneficial use material. Table 2-2 demonstrates the peak daily total for inbound material associated with the Proposed Project. The Proposed Project may include receipt of any combination of the material types, up to the 13,182 tons per day shown below.

Table 2-2. Peak Inbound Material – Daily
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Material Category | Peak Proposed Project |
|---|---|
| Baseline[a] | 6,622 tons per day |
| Waste to be Disposed | 6,000 tons per day increase |
| Mixed Organics Compost Material | 560 tons per day increase |
| Material to be Diverted from Disposal | 0 tons per day increase |
| Total | 13,182 tons per day |

[a] Operational baseline, described in Section 1.5, Clarification of Operational Baseline, defined as the daily average of all material received at CCL in 2011.

## 2.2.5 Landfill Construction

### 2.2.5.1 Summary

| Baseline | Project | Change |
|---|---|---|
| Periodic construction activities | Periodic construction activities | Continuation of periodic construction activities |

### 2.2.5.2 Detailed Description

Construction for the Proposed Project includes development of the entrance and support facilities and landfill cell construction. CCL will ensure that contractor bid specifications for construction projects require offsite pressure washing of construction vehicles and equipment prior to being brought onsite, and verification of this activity before equipment enters the site. Further, the bid specifications will require that equipment is pressure washed after leaving the site and prior to being used elsewhere.

### 2.2.5.3 Entrance and Support Facilities Construction

Construction of the site entrance and associated support facilities will occur following project approval, and will take approximately 10 months to complete. It is estimated that construction will be completed within 2 years following issuance of all required project approvals and resolution of any legal challenges related to those approvals. Construction working hours will generally be daylight hours between 7:00 a.m. and 7:00 p.m., Monday through Saturday. Vehicles associated with construction will be scheduled to avoid peak traffic hours as feasible. The HHWF will be constructed at the same time as the site entrance and support facilities. Preconstruction activities include staking the new entrance area and conducting biological surveys of the disturbance area. Ground-disturbing activities will be monitored for biological and cultural resources, as appropriate.

### 2.2.5.4 Cell Construction

The landfill is developed in a series of cells. Construction of cells and associated environmental monitoring features will occur periodically over the life of the landfill. Generally, cell construction will occur every 18 months to 5 years over the life of the Proposed Project, for approximately 10 months each time. Construction working hours would generally be daylight hours between 7:00 a.m. and 7:00 p.m., Monday through Saturday. Monitoring wells will be installed prior to cell development, so that background water quality can be established for each well. Generally, the area identified for cell construction will be staked, and preconstruction biological surveys will be conducted for the disturbance area. Once cleared for construction, the cell will be excavated (Section 2.2.7.3) and liner will be installed (Section 2.2.7.4). Concurrently, any necessary expansion of the leachate collection and removal system (LCRS) will be installed, as well as landfill gas (LFG) collection systems, including LFG monitoring probes. Ground-disturbing activities will be monitored for biological and cultural resources, as appropriate.

## 2.2.6 Landfill Operation

### 2.2.6.1 Summary

| Baseline | Project | Change |
|---|---|---|
| Ongoing activities required to accommodate 6,000 tons per day of municipal solid waste (MSW) and diversion of materials from waste disposal | Operating activities required to accommodate 12,000 tons per day of waste disposed and continued diversion of materials from waste disposal | Increased truck traffic, employees, onsite equipment, and water usage associated with additional 6,000 tons per day of waste disposal |

#### 2.2.6.2 Detailed Description

The Proposed Project includes continued landfill operations, as described below.

#### 2.2.6.3 Access and Site Security

As part of the Proposed Project, the site entrance will be located at Wolcott Way, as shown in Figure 2-1 and described in Section 2.2.1.

#### 2.2.6.4 Load Checking and Waste Screening

As described above, as a Class III landfill, CCL is prohibited from disposing hazardous waste, including household hazardous waste. To prevent hazardous waste from being disposed, CCL will continue to implement its existing load checking program as part of the Proposed Project. The program is summarized below.

Load checking is required at all Class III landfills and transfer stations, as specified in state regulations. WDRs for the landfill, issued by the California Regional Water Quality Control Board (RWQCB), Los Angeles Region, incorporate load checking requirements; as does the Solid Waste Facility Permit, issued by the LEA after concurrence by the California Department of Resources Recycling and Recovery (CalRecycle), which administers the programs formerly managed by the California Integrated Waste Management Board. CCL's load checking program has been reviewed and approved by applicable regulatory agencies.

Established procedures at CCL are used to prevent hazardous waste entering the landfill. These procedures include posting of signs, education of existing and new customers, verbal and visual screening at the scale house, and daily random checks of incoming vehicles. Signs are posted at the landfill entrance notifying customers that no hazardous wastes are accepted at the facility, and that there are applicable policies and procedures for disposing of unacceptable waste.

Visual inspections are conducted on a daily basis by scale house operators, and they may question drivers for possible indications of unacceptable wastes. Should scale house operators discover a load that contains suspicious looking wastes, they summon the appropriate supervisory or load-checking personnel for a determination of the acceptability of waste. Records are kept to document any discoveries. In the absence of requests from the scale house operators, the load-check technician selects random vehicles to perform a minimum of five load checks each day. The load checks are performed as close as possible to the working face. The material is inspected for any prohibited waste after unloading. The observations of the random inspection are recorded on a data sheet, and photographs and samples of the load are taken if necessary.

The Proposed Project includes construction of an HHWF (Section 2.2.9). In the event hazardous waste is inadvertently brought to the landfill and identified during load checking at the landfill, if the driver is not otherwise directed to take the waste to a licensed hazardous waste disposal facility, the HHWF would provide a secure and approved location to store these materials in preparation for shipment to markets that will recycle the materials or shipment to a hazardous waste disposal site.

#### 2.2.6.5 Support Facilities

In addition to the new scale house and scales, an administration building, storage, and employee parking will be constructed at the new site entrance, as shown in Figure 2-1. An equipment maintenance facility will also be provided onsite; however, the facility location is dependent on site operations, and the equipment maintenance facility may be relocated more than once. This maintenance facility will include a shop building, an office trailer, fuel storage tank, and an equipment wash area. Additionally, various materials used for equipment maintenance (e.g., solvents, waste oil, oil, and other fluids) are stored adjacent to the shop building. Equipment is stored onsite, either adjacent to the working face of the landfill or at the equipment maintenance area. As allowed by CUP No. 89-081(5), hauling trucks and/or

containers for waste collection may be stored on landfill property. An employee break room may be located in the equipment maintenance facility or in a trailer on the site.

Also, one or more additional LFG flares or other technology will be required to handle increased LFG generation in the future. Potential locations for the equipment maintenance facility and the LFG flare are shown in Figure 2-3.

The permanent access road will be lengthened, as necessary, to provide access to the East Canyon and North Canyon. Temporary haul roads will also be constructed to provide access to active landfill areas as is currently done for the existing operation.

#### 2.2.6.6 Hours of Operation

Permitted hours of operation for the Proposed Project will be the same as the currently permitted operating hours. Based on CUP No. 89-081(5), the following hours of operation are permitted:

- Landfill operations 24 hours per day, except from 5:00 p.m. Saturday through 4:00 a.m. Monday. Access to the landfill by both commercial and general public vehicles is allowed during all hours the landfill is operating. Landfill maintenance activities may occur 24 hours per day, 7 days per week.
- Option to operate a maximum of four Sundays per year, if desired, for the quarterly Val Verde cleanup days. If CCL exercises the option of Sunday operation, the schedule of operation will be tailored to the specific need of the situation.
- Composting facility operations 24 hours per day, 7 days per week.

Typically, CCL is open during the following hours, as noted on their website:

| | |
|---|---|
| **Commercial Customers** | |
| Monday | 4:30 a.m. to 5:00 p.m. |
| Tuesday – Friday | 3:00 a.m. to 5:00 p.m. |
| Saturday | 4:30 a.m. to 2:00 p.m. |
| **General Public** | |
| Monday – Friday | 7:00 a.m. to 5:00 p.m. |
| Saturday | 7:00 a.m. to 2:00 p.m. |

Because CCL is permitted to be open 24 hours per day, 6 days per week, the landfill can and does make alternate arrangements with commercial customers, regardless of the hours of operation posted on their website.

#### 2.2.6.7 Personnel

Full-time staff for the Proposed Project will increase by approximately 25, for a total of approximately 50, including additional administrative staff, maintenance personnel, equipment operators, scale house personnel, spotters, LFG technicians, and laborers. Because the volume of incoming waste may vary, the number of staff may fluctuate to some degree. In all cases, staffing will be set to provide for an occupationally and environmentally safe landfill operation at CCL.

#### 2.2.6.8 Equipment

Equipment at CCL for the Proposed Project will increase by 15 to 20 additional pieces. Anticipated additional equipment includes two motor graders, three bulldozers, three compactors, two scrapers, two water trucks, five trailer-mounted light plants, and one water wagon. Consistent with existing practices, at all times, CCL will provide sufficient types and numbers of equipment to properly operate in accordance with applicable permits, approvals, safety considerations, and industry standards. CCL will also periodically review its equipment complement based on operating and maintenance costs,

air quality regulations, and performance, and compare it with other available equipment. This review process may result in future equipment changes designed to achieve lower operating and maintenance costs, lower air emissions, or better performance. All landfill equipment will be maintained on a regular basis to remain in good working order. Equipment will be routinely inspected and maintained with tune-ups and replacement of worn-out mechanical and electrical parts on an as-needed basis and as recommended by the manufacturer.

#### 2.2.6.9 Disposal and Cover Procedures

No change to disposal and cover procedures will occur as a result of the Proposed Project.

Waste will continue to be delivered to CCL in transfer vehicles, collection trucks, and various other vehicles by commercial haulers and the general public. After being processed at the scale house, vehicles follow signs to the active disposal area. When necessary (generally when atypical routing is required), traffic is temporarily directed in the appropriate direction by a flagger. For safety purposes, site personnel direct traffic at the working face. To prevent accidents, site personnel separate large hauling vehicles from smaller general public vehicles at the active working face.

CCL will continue to be constructed by the area fill method, wherein waste is spread and compacted in approximately 2-foot-thick layers on a working face of approximately 200 feet by 300 feet and sloped at 3:1 (horizontal:vertical) or flatter. The compaction equipment traverses the entire length of the working face, making three to five passes over each 2-foot-thick (minimum) layer of waste to obtain adequate compaction of all wastes. To prevent bridging of the surrounding waste, large or bulky wastes are separated and placed in the lower portion of the advancing lift, and thoroughly crushed by compaction equipment.

The work area over which waste is spread is minimized to control odor and litter. Additionally, the waste is covered at least daily with a layer of compacted soil or alternative daily cover. As needed, CCL covers portions of the working face multiple times during the day to minimize potential odors.

Soil cover, consisting of excavated onsite soil and soil delivered to the landfill, is placed and compacted as required by 27 CCR 21660(b)(6), 20680, and 20700. Standards for cover are followed as described in 27 CCR 20705. This requires 6 inches of compacted daily soil cover and 1 foot of compacted intermediate soil cover to be placed on the working face, and the top and side slopes, respectively, of each advancing lift. Cover materials are graded and compacted to: (1) prevent ponding of surface water over wastes, (2) direct runoff from the active waste area, and (3) minimize potential erosion.

Onsite cover soil is either imported or excavated from one of the excavation cells or borrow areas.

Consistent with Title 27, types of alternative daily cover that may be used at CCL include geosynthetic materials, foam, processed green material, ash and cement kiln dust materials, TASW, contaminated sediment, dredge spoils, foundry sands, energy resource exploration and production waste, compost materials, construction and demolition wastes, shredded tires, and spray applied cementitious products. The source of alternative daily cover depends on the availability of materials available for beneficial use that are approved for use as alternative daily cover. Sludge will not be used as alternative daily cover.

Materials used for alternative daily cover are approved for use by the LEA and CalRecycle; if regulatory guidance changes regarding the use of any of these materials for alternative daily cover, CCL will comply with the revised guidance.

#### 2.2.6.10 Sewage and Water

No changes to the water uses onsite or sewage disposal are proposed as a result of the Proposed Project.

CCL currently does not have sewage or water service provided by a public utility system. Sanitary facilities at the landfill office are connected to a permitted septic system, and portable toilets are used

for other areas of the site. Unless a sewer line becomes available in the future, the Proposed Project will continue to rely on these facilities. A new septic system may be constructed to support the entrance facilities.

Bottled drinking water will continue to be provided at the scale house, landfill office, and equipment maintenance facility for employees. Employees can fill their personal containers for their own use when on the landfill.

Water for routine landfill operation, including dust control and irrigation, will continue to be supplied from an offsite irrigation well south of the landfill on Newhall Ranch. During periodic construction of new landfill disposal cells, additional construction water will be supplied via a separate water supply line from storage tanks located north of the landfill. Currently, this line is only used during construction projects. However, when the Newhall Ranch Project is developed, the irrigation well on Newhall Ranch that currently supplies the landfill will be removed. At that time, CCL will begin using the water supply line north of the landfill, which is connected to Valencia Water Company's system, for both construction and routine operation.

Water for dust control, irrigation, and fire prevention will continue to be pumped to and stored in various onsite storage tanks located throughout the site. The total onsite water storage capacity at CCL is currently about 150,000 gallons. Water usage is expected to increase to approximately 150 acre-feet per year with implementation of the Proposed Project, up from an average of approximately 77 acre-feet per year. The amount of water required may vary according to the season and rainfall amounts, with more water being required during the hot, dry summer months and during years with limited rainfall. Additional water storage tanks may be required in response to the increase in water usage at CCL as a result of the Proposed Project. As these tanks are portable; the size and number and location of tanks onsite will vary to meet operational efficiency.

#### 2.2.6.11 Traffic

Traffic at CCL for the Proposed Project would come from a variety of sources, including waste to be disposed, mixed organics compost material, beneficial use material, special projects (primarily periodic construction projects), and employees and visitors.

Baseline traffic consists of the trucks associated with 6,622 tons per day of combined waste to be disposed and material to be diverted from waste disposal, plus other vehicles not associated with materials delivered to the landfill. The baseline for traffic includes 403 trucks associated with the operational baseline, plus 100 vehicles associated with periodic cell construction and 65 vehicles associated with employees and/or visitors.

The proposed increase in project traffic consists of the trucks associated with 6,560 additional tons per day of additional inbound material plus vehicles associated with 22 additional employees.

Table 2-3 illustrates traffic at CCL for the Proposed Project on a peak day. A peak day consists of baseline traffic plus traffic associated with the Proposed Project on a peak day. A peak day compares baseline traffic to peak day traffic, which is the most conservative approach, and the scenario selected for the traffic analysis, which is further described in the Traffic Supplement included as an attachment to the Partially Recirculated Draft EIR.

Table 2-3. Summary of Additional Vehicles Associated with Proposed Project – Peak Day
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Material/Vehicle Source | Baseline Traffic | Proposed Increase – Peak Day[b] | Peak Proposed Project[c] | Net Change – Peak Day[d] |
|---|---|---|---|---|
| Inbound Material | 403 | -- | 975 | -- |
| Transfer Trucks | -- | 272 | -- | 272 |
| Route Trucks | -- | 300 | -- | 300 |
| Special Projects[e] | 100 | 0 | 100 | 0 |
| Employees and Visitors | 65 | 22 | 87 | 22 |
| Total | 568 | 594 | 1,162 | 594 |

[a] Baseline vehicle count is based on the number of trucks associated with the operational baseline for all inbound material.

[b] Number of trucks anticipated to be required for an additional 6,560 tons per day of additional inbound material for a peak day. Includes 272 transfer trucks and 300 route trucks. It is estimated that transfer trucks would carry an average of 22 tons per load and route trucks would carry an average of 10 tons per load. The tonnage per truck would be variable depending on material, and the type of truck would vary, but total additional trucks would not exceed 572 and total additional tonnage would not exceed 6,560 tons.

[c] Peak Proposed Project is the sum of baseline trucks plus the proposed vehicle increase for a peak day.

[d] Net Change – Peak Day is the number of additional vehicles associated with an additional 6,560 tons per day for the Proposed Project. The number of trucks shown for a Net Change – Peak Day in this Partially Recirculated Draft EIR is the same number of trucks evaluated in Chapter 10.0, Traffic and Transportation, of the Original Draft EIR, and analyzed in the Traffic Analysis for the Proposed Project, included in Appendix G of the Original Draft EIR.

[e] Special projects could include entrance or cell construction, LFG system expansion, expansion of environmental monitoring systems, etc.

Table 2-4 illustrates traffic at CCL for the Proposed Project on an average day. An average day consists of baseline traffic plus traffic associated with the Proposed Project on an average day.

Table 2-4. Summary of Additional Vehicles Associated with Proposed Project – Average Day
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Material/Vehicle Source | Baseline Traffic[a] | Proposed Increase – Average Day[b] | Average Day Proposed Project[c] | Net Change – Average Day |
|---|---|---|---|---|
| Inbound Material | 403 | -- | 795 | -- |
| Transfer Trucks | -- | 234 | -- | 234 |
| Route Trucks | -- | 158 | -- | 158 |
| Special Projects[d] | 100 | 0 | 100 | 0 |
| Employees and Visitors | 65 | 22 | 87 | 22 |
| Total | 568 | 414 | 982 | 414 |

[a] Baseline vehicle count is based on the number of trucks associated with the operational baseline for all inbound material.

[b] Number of trucks assumed to be required for an additional 6,560 tons per day of additional inbound material for an average day. Includes 234 transfer trucks and 158 route trucks. It is estimated that transfer trucks would carry an average of 22 tons per load and route trucks would carry an average of 10 tons per load. The tonnage per truck would be variable depending on material, and the type of truck would vary, but total additional tonnage would not exceed 6,560 tons.

[c] Average Day Proposed Project is the sum of baseline trucks plus the proposed vehicle increase for an average day.

[d] Special projects could include entrance or cell construction, LFG system expansion, expansion of environmental monitoring systems, etc.

## 2.2.7 Landfill Design Features

### 2.2.7.1 Summary

| Baseline | Project | Change |
|---|---|---|
| Landfill design based on prescriptive and performance standards set by state and federal regulatory requirements | Landfill design based on prescriptive and performance standards set by state and federal regulatory requirements | Modified final topography, to accommodate increase in landfill volume |

### 2.2.7.2 Detailed Description

Design of the landfill is premised on prescriptive and performance standards set forth in state and federal regulatory requirements that establish environmental protection standards to prevent harm to the environment. These design standards and requirements are referenced throughout in the discussion of the landfill's design. A central feature of the environmental protection standards is the composite liner system, designed to prevent waste from contacting water, and to prevent the escape of leachate or LFG to the air or to waters of the state. The state and federal landfill design requirements also create redundancy and protective measures to prevent harm to the environment.

### 2.2.7.3 Excavation

Site excavation is divided into a series of excavation areas associated with fill modules. The excavation sequence is designed for efficient excavation and handling of soils, access, drainage, liner preparation, and controlled waste placement.

Landfill areas are excavated sequentially in a series of cells to create new space for placing trash. Excavation generates the soils necessary for landfill operations (cover soils) and allows the base and side slopes of the excavated cells to be prepared for lining. Typically the next landfill fill module is constructed adjacent to the active fill module that is accepting waste. In most instances, excavated soils are stockpiled onsite to allow timely preparation of the next fill module.

The excavation and base preparation plan (Figure 2-4) shows the design of the landfill base for the Proposed Project. The horizontal limits of excavation, excavation contours, and slopes are shown in Figure 2-4. The East Canyon, North Canyon, and the South Footprint will be excavated in a series of construction projects over many years. Excavation and earth fill are also required for the facility. In addition to excavation from areas to be developed, potential soil borrow areas are shown in Figure 2-4. The soil borrow areas are utilized to meet soil requirements not met by other excavation areas. Figure 2-5 depicts the proposed limit of disturbance, limit of earthwork, and limit of landfill.

The excavation layout sequence is designed for efficient excavation and handling of soils, access, drainage, liner preparation, and controlled waste placement. The planned excavations typically provide the soil required for site operations. Excavation quantities for the Proposed Project are shown in Table 2-5 and represent the difference between the No Project Alternative final grading plan and the Proposed Project final grading plan (the No Project Alternative is described in Chapter 18, Project Alternatives, and shown in Figure 18-1). Soils not needed for immediate landfill operations will be stockpiled onsite for subsequent use. Figure 2-5 shows the limit of excavation and earthfill, limit of landfill disposal area, and limit of disturbance (areas outside of excavation, earthfill, and landfill where activity may still occur in order to construct the various stages of the landfill or to support landfill operations). Any area within the limit of disturbance may be used for soil stockpiling.

As currently planned, the proposed excavation quantity balances the landfill soil requirements. The soil quantities shown in Table 2-5 do not include soil delivered to the landfill by contractors and from other sources.

Table 2-5. Estimated Proposed Project Earthwork
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Earthwork[a] | Cubic Yards |
|---|---|
| Daily and Intermediate Cover[b] | 7,620,000 |
| Final Cover[c] | 869,000 |
| Liner | 539,000 |
| Earthfills | 1,427,000 |
| Project Earthwork Total | 10,455,000 |
| Excavation[d] | 10,655,362 |

[a] Proposed Project earthwork based on a comparison of the No Project Alternative final grading plan to the Proposed Project final grading plan.

[b] Daily and intermediate cover assumes a 10.25-to-1 waste-to-soil ratio.

[c] Assumes 1 foot foundation layer and an additional 4 feet of cover over the top deck and side slopes.

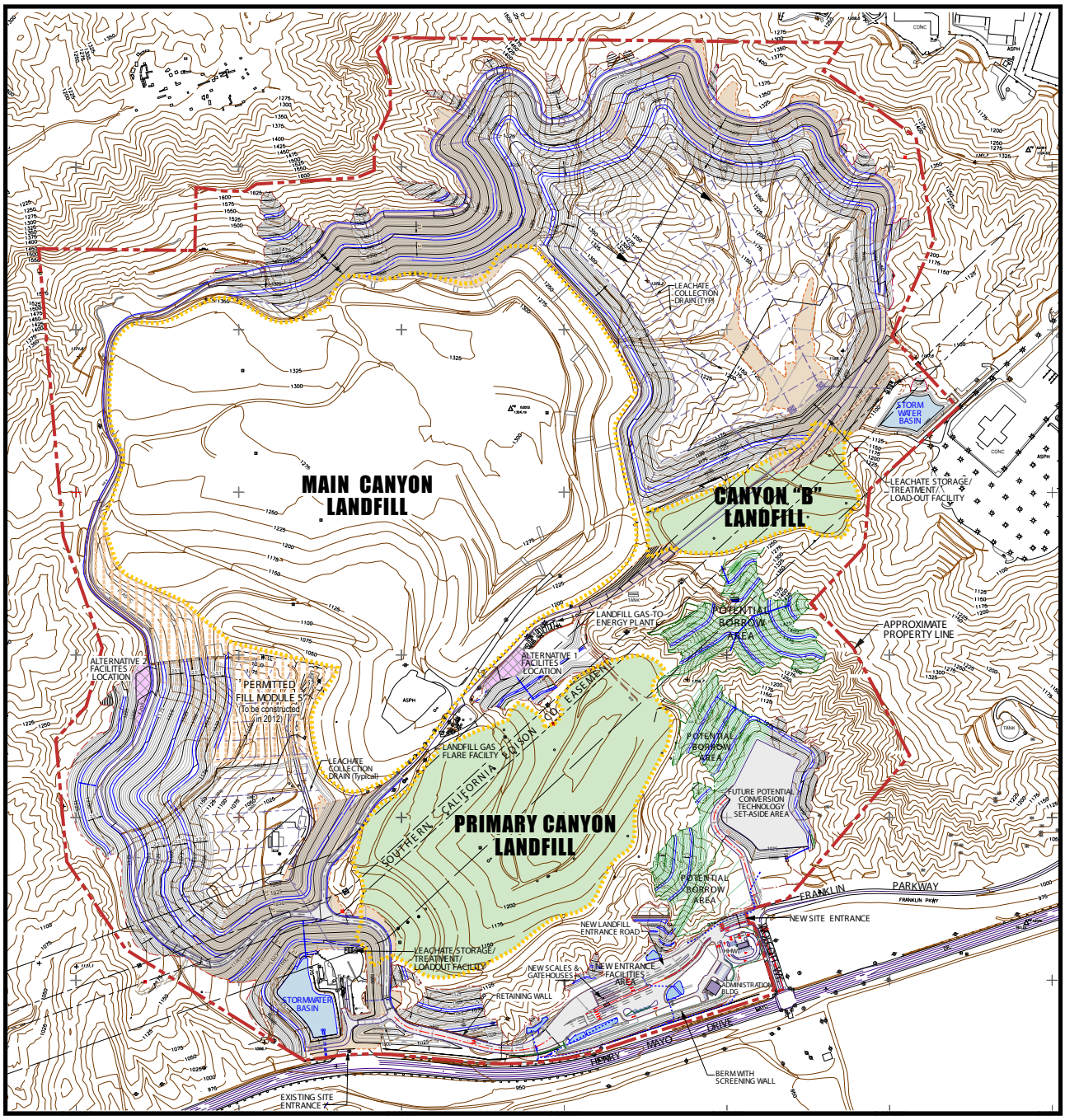
[d] Includes set-aside area, entrance road, and borrow areas outside the landfill footprint.

### 2.2.7.4 Liner System

No change to the landfill liner system is anticipated as a result of the Proposed Project, but the liner system remains subject to the requirements of RWQCB. The existing liner system that will be implemented by the Proposed Project as well is described below.

A liner system that meets or exceeds the standards of Title 27 CCR 20340 (Title 27), WDR Order No. 93-062, implementing the United States Environmental Protection Agency (EPA) Subtitle D requirements, and WDR Order No. 98-086, is constructed on the excavated base and side slopes of each fill module. Historically, composite base liners using either a bentonite admix or geosynthetic clay liner (GCL) in conjunction with a high-density polyethylene (HDPE) geomembrane have been used at CCL. RWQCB has recently approved a low-permeability soil layer in conjunction with an HDPE geomembrane. The liner system is consistent with strength requirements and meets the stability criteria previously developed for CCL and approved by RWQCB. Pursuant to WDR Order No. 93-062, the side slope liner consists of HDPE geomembrane placed over a prepared subgrade (Figure 2-6). Prior to construction of each fill module, the liner design is subject to review and approval by RWQCB pursuant to Title 27 and WDR Order No. 98-086.

Both Subtitle D and California regulations implementing Subtitle D allow an alternative liner design if it can be demonstrated that the alternative liner design provides protection to groundwater equivalent to the prescriptive standard liner design. RWQCB has previously approved an engineered alternative liner design, incorporating a GCL, for the last several disposal modules.




**LEGEND**

- LIMIT OF EXISTING LANDFILL (4/6/10)
- CLOSED PERMITTED LANDFILL AREA
- POTENTIAL BORROW AREA
- EARTHFILL
- ALTERNATIVE EQUIPMENT/MAINTENANCE AREA

N

0 400 800

Feet

**Figure 2-4.**
**Proposed Project Excavation Plan**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Source: Golder Associates, 2014

EN1030151026SCO CCL_proposed_excavation_2016.ai 9/16

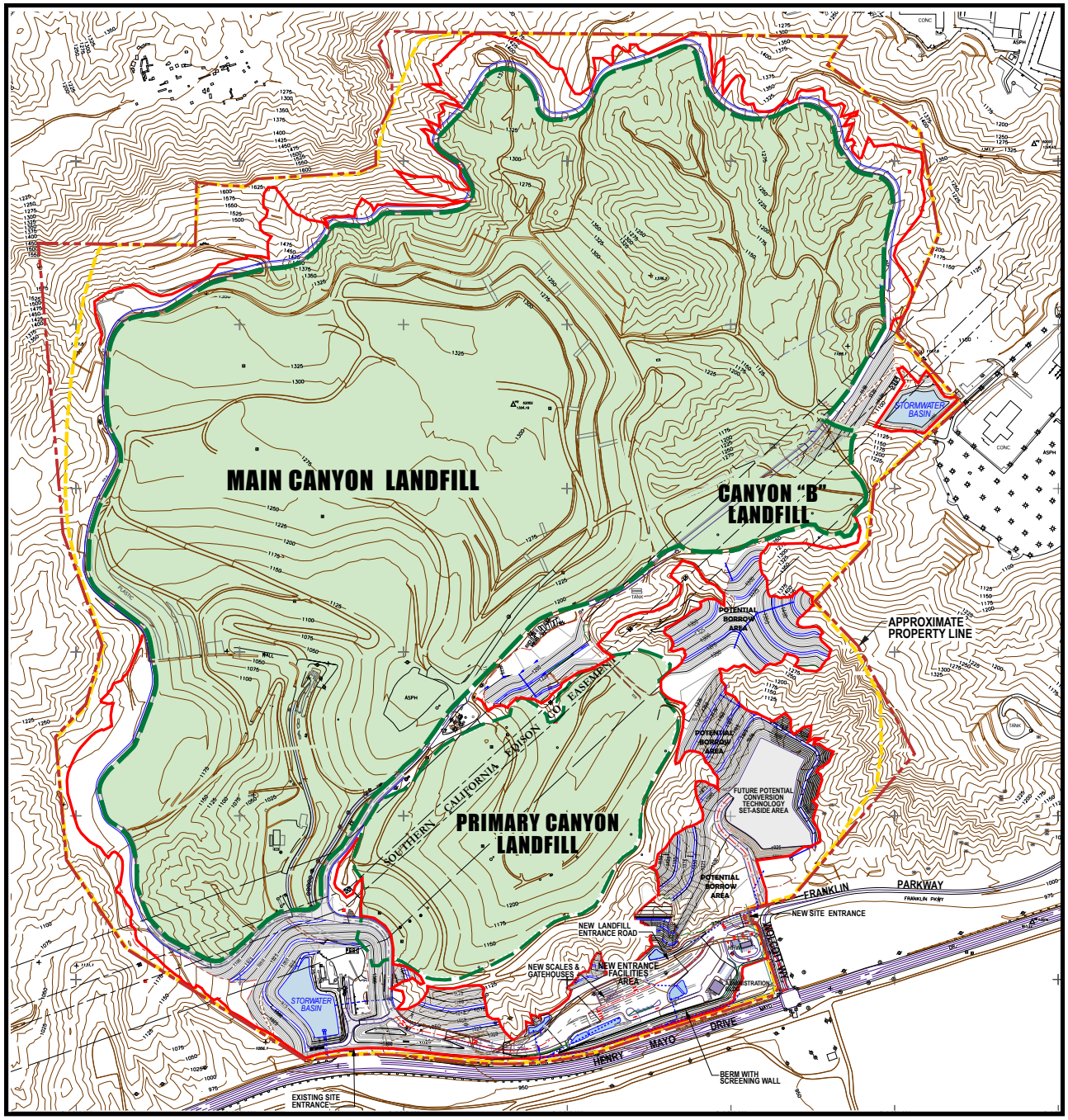



**Figure 2-5.**
**Proposed Project Limits**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010
NOTE: Any area within the limit of disturbance
can be used for soil stockpiling

Source: Golder Associates, 2014

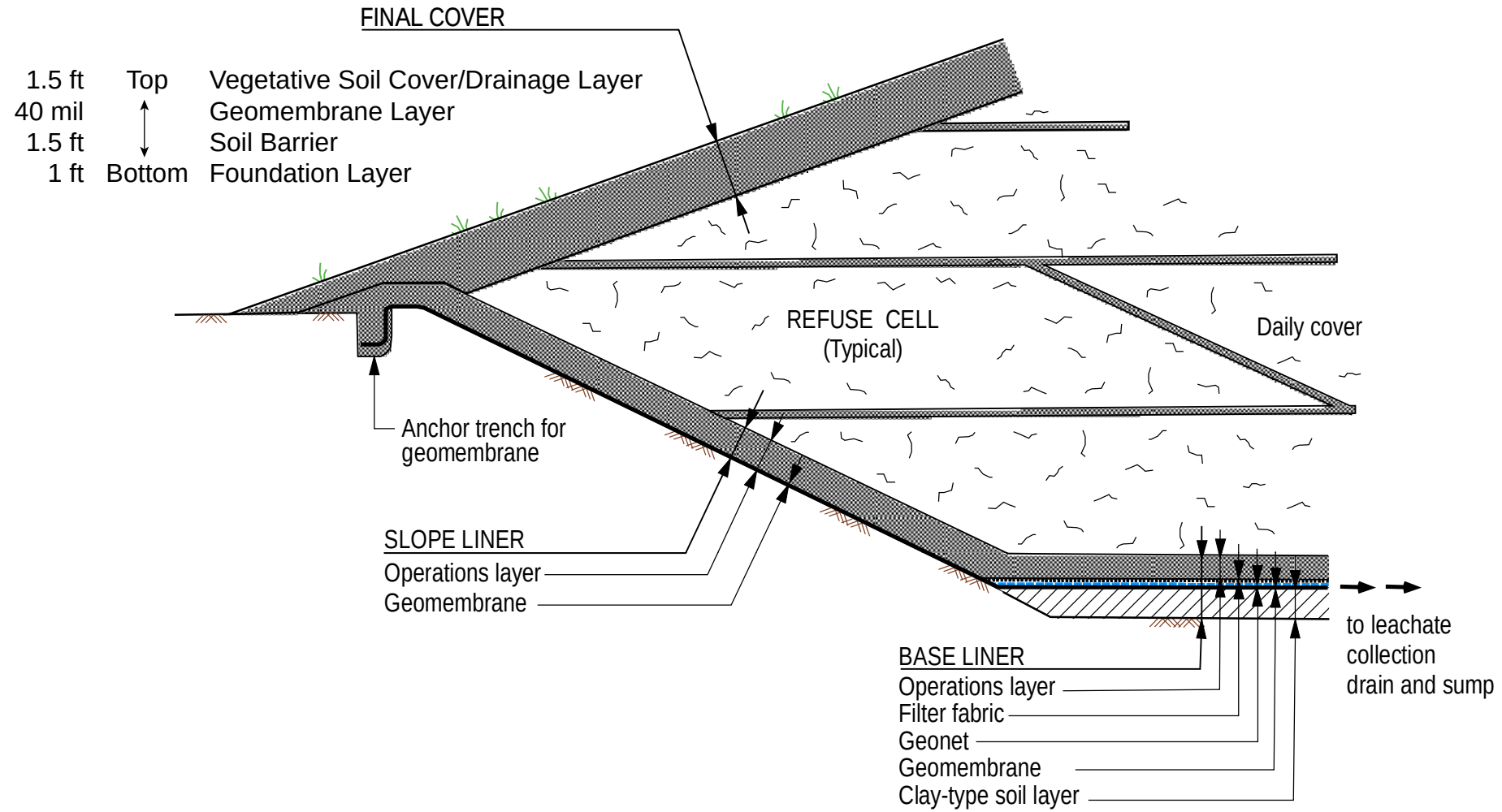



**Figure 2-6.**
**Base and Slide Slope Liner**
*Chiquita Canyon Landfill*
*Master Plan Revision*

The liner system is designed to contain liquid (leachate) that accumulates in the landfill and direct it to the LCRS. The LCRS is composed of a drainage layer and perforated collection pipes. The collection pipes intercept leachate flowing through the drainage layer and convey the leachate to collection points. Leachate is pumped from the collection points periodically, and depending on quality, either used onsite for dust control or transported offsite for disposal. The LCRS is designed to withstand deformations of the foundation materials anticipated during the design earthquake so that any permanent displacement of the foundation slopes does not impair the integrity of the liner and LCRS. A 2-foot soil layer, or approved alternative, termed the "operations layer," is placed over the base liner and on the side slope liner to protect the liner system before waste is placed.

Before construction of the liner system, a detailed construction quality assurance (CQA) plan for the installation of the liner and LCRS must be developed and subsequently submitted to and reviewed and approved by RWQCB. The CQA plan defines the extensive testing to be performed during construction to ensure the liner and LCRS are constructed in accordance with the plans and specifications.

#### 2.2.7.5 Final Grading Plan

The landfill final grading plan for the Proposed Project, shown in Figure 2-3, shows the proposed contours for landfill development. Consistent with the existing landfill grading plan, the design of the landfill final grading plan is controlled by surrounding topography, existing limits of the waste fill, waste and soil consolidation and settlement considerations, slope stability requirements, minimum surface gradients required to adequately drain the completed fill, drainage requirements of stormwater drainage control facilities, aesthetics, and site end use considerations.

Final landfill slopes will be constructed no steeper than 3:1. An earthfill berm will be constructed at the south end of the Main Canyon area to serve as a buttress. A screening berm is proposed near the existing scale house to provide a visual screen from SR-126. (As noted in Section 2.2.1, the screening berm may be replaced by a wall depending on the Caltrans SR-126 widening design.) To create a slope designed to minimize erosion and future maintenance, 20-foot-wide benches will be constructed at approximately 50-foot-elevation change intervals. The top deck final grades will be no flatter than 3 percent to provide sufficient slope for surface water runoff after anticipated settlement of the underlying waste fill. The entire landfill will be covered with a final cover designed to minimize infiltration of precipitation. Landfill top deck and side slope areas will receive a final cover designed to meet the requirements of the regulation applicable at the time of construction. As discussed in further detail in Section 2.2.7.6, the final cover will be placed and vegetated as individual areas of the landfill are brought to final grade. A Final Closure Plan, with all the details of the final cover design and revegetation plan, will be submitted to RWQCB and CalRecycle for approval. State law requires the Final Closure Plan to be submitted and approved before actual closure construction begins.

The fill module layout plan (Figure 2-7) presents a staged sequence of fill placement to achieve the final grades shown in Figure 2-3. The landfill is developed sequentially, considering the effects of landfill stability, allowing the final cover and drainage facilities to be completed as the fill progresses. The remaining Main Canyon area and the South Footprint are proposed to be developed in three fill modules, Fill Modules 5, 6, and 7. The East Canyon and North Canyon are proposed to be developed in five fill modules, Fill Modules 8 through 12. (The fill modules shown in Figure 2-7 represent the lined footprint of each module. In most cases, the module will "lie" against an adjacent module or go "up and over" an adjacent module.)

The development sequence shown in Figure 2-7 is a concept drawing that represents a logical site development plan with inherent assumptions about what might happen in the future. However, many factors at any future point in time may require changes to the execution of the development plan. Fill modules may be developed in phases, or combined, or not developed sequentially. Factors that affect the actual timing and sequence of future cell development include: market conditions that dictate incoming waste volumes, interim soil handling requirements (temporary stockpile locations),

availability of alternative cover materials, internal access roads and traffic flow, interim stability, temporary drainage patterns, optimum control of waste placement, fill module construction costs, and other related operational aspects. These factors are reevaluated many times during the life of the landfill and are used to develop the actual fill sequence plans.

#### 2.2.7.6 Final Cover Design

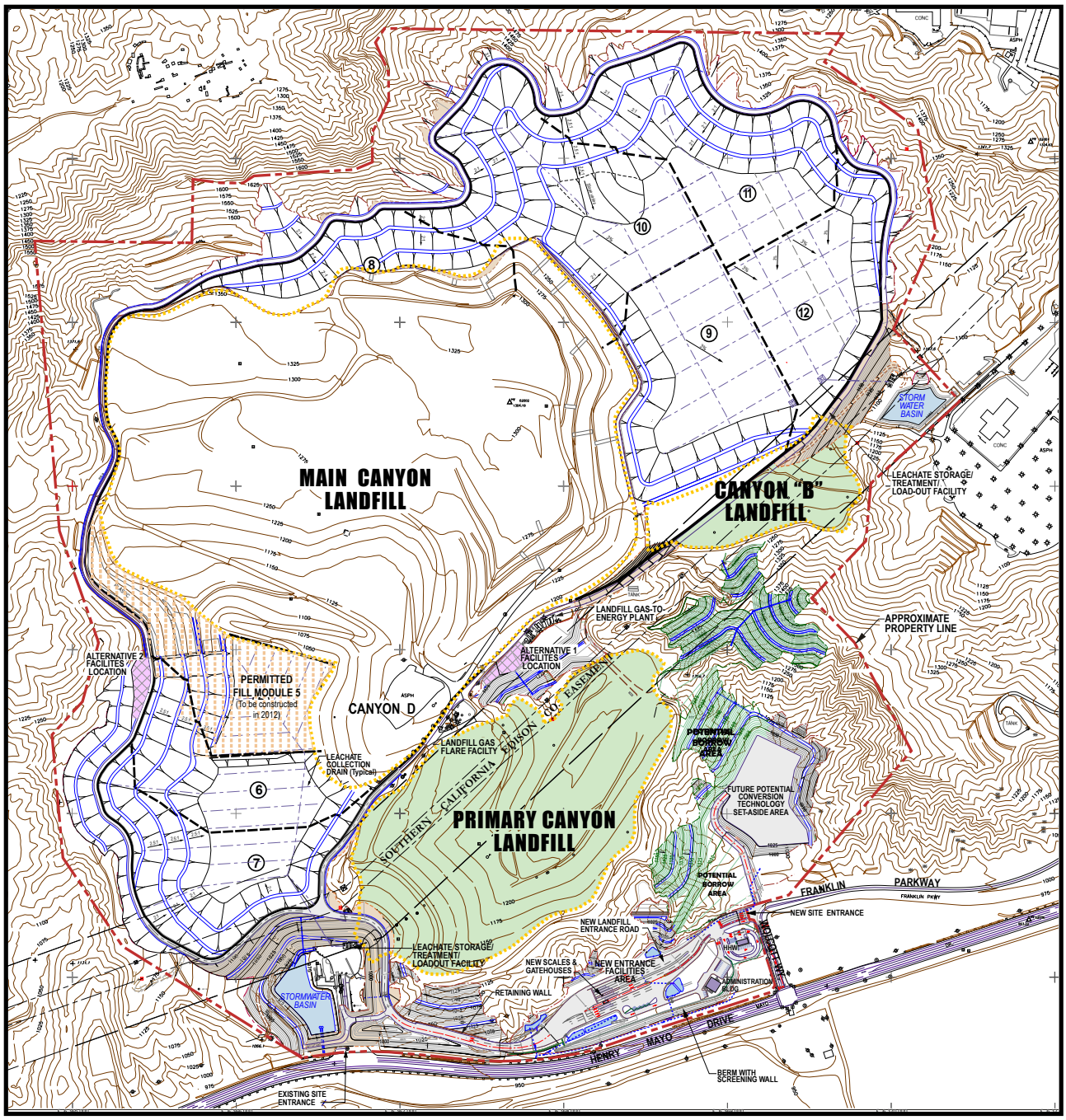
The Proposed Project will follow the final cover design included in the *Preliminary Closure and Postclosure Maintenance Plan, Chiquita Canyon Landfill, Los Angeles County, California,* prepared by Golder Associates, Inc. in April 2010 and revised in July 2010 and September 2011. No change to the landfill final cover design is anticipated as a result of the Proposed Project, unless approved by the appropriate regulatory agencies.

When the current landfill reaches capacity, it will be covered with a final cover designed to minimize water infiltration into the landfill and meet or exceed appropriate regulatory standards. The landfill final cover will consist of two major areas: the top deck and the side slopes. Consistent with Title 27 requirements, the final cover of the top deck and side slope areas of the completed landfill will be designed by a registered civil engineer or certified engineering geologist, and placed in a manner consistent with an approved CQA program. Specifically, the final cover design will consist of the following layers from bottom to top:

- A minimum 1-foot-thick foundation layer, which will be placed as intermediate cover during waste disposal operations
- A minimum 1.5-feet-thick soil barrier with a maximum hydraulic conductivity of $1 \times 10^{-5}$ centimeters per second
- A minimum 40-mil-thick geomembrane liner
- A minimum 1.5-foot-thick vegetative soil cover/drainage layer, suitable to support good vegetation of native plant species

The vegetative soil layer and the drainage layer will be capable of providing adequate rooting depth for drought-resistant vegetation that will aid in minimizing erosion. Current regulations allow alternative final cover designs, if approved by RWQCB, the LEA, and CalRecycle. As part of the final closure and post-closure maintenance plan, CCL may propose an alternative final cover design that conforms to regulatory performance standards. If an alternative final cover is proposed, the engineered alternative proposal will demonstrate that the engineered alternative is consistent with the performance goals of the final cover system specified in current regulations. The RWQCB has previously approved an alternative final cover for Canyon B and the Primary Canyon.

Final cover will be placed as significant portions of the landfill reach final grade, consistent with Title 27. The quantity of final cover soils required was presented previously in Table 2-2. Final cover will be placed within 180 days after placement of the final lift of waste or in accordance with the closure schedule contained in the final closure and post-closure maintenance plan to be approved by RWQCB, the LEA, and CalRecycle. The final closure and post-closure maintenance plan will be submitted to RWQCB, the LEA, and CalRecycle 2 years before any final closure activities. At that time, a CQA program will be proposed. Final cover construction will be conducted under the supervision of a registered civil engineer.




## LEGEND

- ⑤ FILL MODULE DESIGNATION
- MODULE LIMIT LINE
- LIMIT OF EXISTING LANDFILL (4/6/10)
- CLOSED PERMITTED LANDFILL AREA
- MRF AND HOUSEHOLD HAZARDOUS WASTE FACILITIES LOCATION
- ALTERNATIVE EQUIPMENT/MAINTENANCE AREA

N

0 400 800

Feet

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Source: Golder Associates, 2014

**Figure 2-7.**
**Proposed Fill Module Layout Plan**
*Chiquita Canyon Landfill*
*Master Plan Revision*

## 2.2.8 Environmental Monitoring

### 2.2.8.1 Summary

| Baseline | Project | Change |
|---|---|---|
| Onsite environmental systems to protect groundwater, surface water, and air quality; also nuisance and health hazard monitoring | Expanded onsite environmental systems required to accommodate the larger landfill footprint and additional daily volume | Additional groundwater monitoring points and LFG monitoring points, along with an expanded odor control system |

### 2.2.8.2 Detailed Description

The landfill environmental monitoring systems are a component of the overall landfill design and operating standards established by state and federal regulations and work in conjunction with the landfill design standards to provide a key assurance of early detection of any potential for impairment of groundwater or air quality.

### 2.2.8.3 Water Quality Monitoring

Stringent regulations regarding landfill design and operation, in particular liner design, are intended to prevent water quality impacts. As described above, the liner system for CCL meets the strength requirements and meets the stability criteria previously developed for CCL and approved by RWQCB.

Water quality monitoring has been conducted at CCL since January 1986. The current program requires monitoring of the groundwater and the unsaturated (vadose) zone, monitoring for leachate production, monitoring of surface water, and monitoring of the incoming waste stream. The monitoring program is conducted in accordance with the current Monitoring and Reporting Program (MRP) contained in RWQCB Order No. 98-086. Quarterly monitoring is required by the current WDRs and MRP for the landfill, and data are reported in semiannual and annual reports submitted to RWQCB.

The monitoring program for the Proposed Project will be similar to the existing program and will require approval by the RWQCB under the landfill facility WDRs. A summary of the existing program and proposed minor modifications under the new program is provided below.

### 2.2.8.4 Groundwater and Vadose Zone Monitoring

The Proposed Project will require modification of the existing monitoring network. Based on the extended waste footprint, replacement of existing monitoring points and installation of new monitoring points are necessary to comply with Title 27 monitoring requirements.

**Groundwater and Vadose Monitoring Network**

The current groundwater quality monitoring network consists of 14 groundwater monitoring wells (DW-1, DW-3, DW-7, DW-8, DW-12, DW-14, DW-15, DW-16, DW-17, DW-18, DW-20, DW-21, DW-28, and PZ-4). Additional points DW-9, DW-23, DW-24, DW-25, DW-26, DW-27, PZ-3, PZ-5, PZ-6, PZ-7, GP-15, GP-16, GP-17, GP-21, GP-22, GP-24, and GP-25 provide groundwater elevation data only.

Wells DW-24, DW-26, PZ-5, and PZ-6, which are northeast of the landfill, are not part of the groundwater monitoring program specified in the WDRs and MRP, but are monitored for potential future use as background water quality data.

The extension of the landfill footprint into the South Footprint, East Canyon, and North Canyon will require abandoning monitoring wells DW-3, DW-6, DW-12, DW-20, DW-24, and DW-25, and piezometers PZ-3, PZ-5, PZ-6, and PZ-7. These will be replaced by seven new monitoring wells (DW-29 through DW-35). The proposed locations for the new monitoring wells are shown in Figure 2-8.

Monitoring wells DW-30, DW-31, DW-32, DW-33, and DW-34 will provide downgradient monitoring locations for the East Canyon and the North Canyon. Monitoring well DW-29 will provide downgradient monitoring for the South Footprint. Monitoring well DW-35 will replace DW-12 and will provide a downgradient monitoring location for the Primary Canyon. Piezometer PZ-4 will be converted to a monitoring well and added to the monitoring network to provide a downgradient monitoring location for Canyon B.

The proposed monitoring well network will consist of monitoring wells DW-1, DW-7, DW-8, DW-14 through DW-18, DW-23, DW-26, DW-28 through DW-35, and piezometer PZ-4. Monitoring wells DW-9, DW-21, and DW-27 will be used for groundwater elevations only. The proposed groundwater monitoring network is summarized in Table 2-6.

Table 2-6. Proposed Groundwater Monitoring System
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

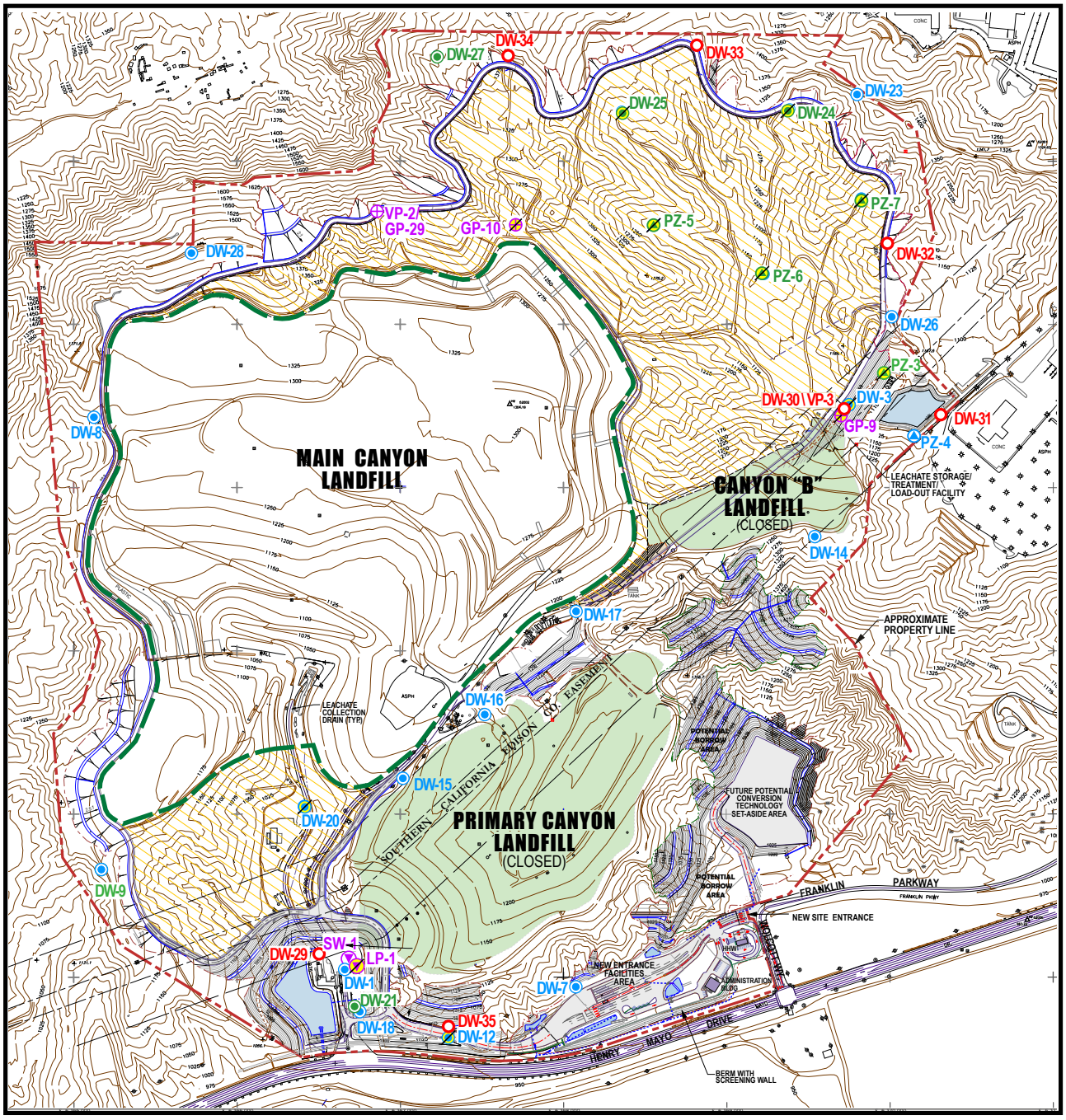
| Area | Downgradient Monitoring Points | Upgradient Monitoring Points |
|---|---|---|
| Main Canyon | DW-1 | DW-8 |
| | DW-15 | DW-9[a] |
| | DW-16 | DW-17 |
| | DW-18 | DW-28 |
| | DW-21[a] | |
| | DW-29 | |
| East and North Canyons | DW-23 | DW-27[a] |
| | DW-26 | DW-28 |
| | DW-30 | |
| | DW-31 | |
| | DW-32 | |
| | DW-33 | |
| | DW-34 | |
| Primary Canyon | DW-1 | DW-16 |
| | DW-7 | DW-17 |
| | DW-18 | |
| | DW-21[a] | |
| | DW-35 | |
| Canyon B | DW-30 | DW-14 |
| | DW-31 | |
| | PZ-4 | |

[a] Measured for groundwater elevation only.

The vadose zone monitoring system consists of vacuum lysimeter LP-1, vadose well SW-1, and multi-level LFG monitoring probes GP-9 and GP-10. (The highest monitoring level of GP-9 is the vadose zone monitoring point. The lowest monitoring level of GP-10 is vadose zone monitoring point VP-1.)

Vadose zone monitoring points LP-1, GP-9, and VP-1 (GP-10) are replaced with groundwater monitoring well DW-30 (vadose zone monitoring point VP-3) and LFG monitoring probe GP-29 (vadose zone monitoring point VP-2), as shown in Figure 2-8. The proposed vadose zone monitoring system comprises SW-1, VP-2 (GP-29), and VP-3 (DW-30). GP-29 is a multi-level probe. Only the shallow probe will be monitored as part of the proposed vadose zone monitoring system.

The proposed monitoring well network will be submitted to and approved by RWQCB before implementation.




LIMIT OF PERMITTED LANDFILL
CLOSED PERMITTED LANDFILL AREA
PROPOSED PROJECT LATERAL EXPANSION

GROUNDWATER MONITORING NETWORK

DW-14 GROUNDWATER MONITORING WELL
DW-29 PROPOSED GROUNDWATER MONITORING WELL
PZ-4 PIEZOMETER

VADOSE ZONE MONITORING NETWORK

SW-1 VADOSE WELL
GP-9 LANDFILL GAS MONITORING PROBE

GROUNDWATER ELEVATION MONITORING NETWORK

DW-9 GROUNDWATER WELL

WELL, PIEZOMETER OR PROBE TO BE DECOMMISSIONED

N

0 400 800
Feet

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Monitoring Locations Source:
R.T. Frankian & Associates

**Figure 2-8.**
**Proposed Groundwater Quality Monitoring System**
*Chiquita Canyon Landfill*
*Master Plan Revision*

The groundwater samples collected from the existing and proposed monitoring wells will represent the quality of groundwater passing the points of compliance, in accordance with Title 27, and will allow for early detection of a release from each waste management unit.

**Monitoring Well Installation**

The new monitoring wells will be installed prior to landfill development, so that background water quality can be established for each well. Piezometer PZ-4 will be converted to a monitoring well, and new wells will be installed at least 1 year before the development of the adjacent landfill area.

As required by RWQCB, all drilling, soil sampling, logging, well construction, and development is conducted under the direction of a California-registered professional geologist. A California-licensed drilling company will drill, construct, and develop the monitoring wells.

**Sampling, Analysis, and Reporting Requirements**

The current monitoring parameters, sampling, and analysis procedures will be continued for the expanded monitoring program. Procedures and techniques for groundwater sample collection, chemical analysis, and chain-of-custody control will be performed as specified in the groundwater monitoring program approved by RWQCB. In conjunction with the Proposed Project, sampling and reporting will be semiannual, if approved by RWQCB. After RWQCB approval, the MRP will be continued until modified or terminated.

The current monitoring parameters, sampling and analysis procedures, and reporting schedules to be followed are described below:

- Groundwater and vadose zone samples are collected and analyzed quarterly at a state-certified analytical laboratory. Constituents of concern (COC) are analyzed every 5 years with the next COC event scheduled for the fourth quarter of 2016. Procedures and techniques for groundwater and vadose zone sample collection, chemical analysis, and chain-of-custody control are performed as specified in the groundwater monitoring program approved by RWQCB. The groundwater and vadose zone samples are analyzed in accordance with accepted quantitative analytical procedures. Only laboratories certified by the California Department of Health Services perform the analytical work.
- In addition to collecting groundwater samples from the monitoring wells, other tasks are performed for a typical monitoring event. These tasks include measuring the depth to water in each well, performing and documenting quality assurance/quality control procedures, and visually inspecting the wells to see that they are in proper working order. Groundwater flow at the landfill is evaluated based on the water levels measured in the wells. A potentiometric surface map is constructed, and the groundwater flow direction and gradient are estimated.
- Monitoring reports are submitted to RWQCB semiannually: in June for the January-to-June period, and in December for the July-to-December period. An annual report is submitted in March.

#### 2.2.8.5 Leachate Monitoring

Consistent with Title 27, and the WDRs and MRP for CCL, the existing LCRS is monitored by periodic observation and sampling of collected leachate. The existing leachate monitoring program will continue to be in effect for the Proposed Project.

The landfill liner system is designed to contain leachate that may accumulate in the landfill and direct it to an LCRS sump or storage tank. The LCRS at CCL is a gravity system, with the main leachate collection pipe sloping toward a collection point or a storage tank. The Proposed Project will add one leachate collection point in the East Canyon area. However, because leachate tanks are a mobile facility that move as cells are developed, the location of the proposed tank will likely change over time. The leachate collection point at the southerly boundary of the existing permitted landfill will be relocated down canyon.

The collected leachate will continue to be transported offsite regularly for disposal. Leachate is collected and evaluated annually for COCs specified for groundwater monitoring. The leachate samples will be analyzed in accordance with accepted quantitative analytical procedures. Only laboratories certified by the California Department of Health Services will perform the analytical work. If collected leachate meets reuse requirements contained in the WDRs established by WDR Order No. 98-086 (or as amended or issued in the future), CCL may use it for dust control at the landfill on a lined module equipped with an LCRS. Otherwise, leachate can be either treated onsite or transported offsite to an approved facility for disposal. If the leachate is determined to be hazardous, a licensed hazardous waste hauler will transport it to an approved treatment and disposal facility. CCL conducted a pilot scale test program to determine the technical feasibility and cost-effectiveness of treating leachate onsite for reuse as dust control water and found that onsite treatment and reuse is not technically feasible or cost effective at this time. The WDRs for CCL allow the use of leachate onsite only if it is treated to near drinking water quality. If the WDRs for CCL are revised such that onsite treatment and/or reuse of leachate is feasible, CCL would use leachate onsite for dust control in a lined module equipped with an LCRS.

Currently 2-3 trucks of leachate per day are transported offsite to one of two waste water plants for treatment: Southern California Waste Water in Santa Paula, California, and South West Processing in Vernon, California. Caltrans regulates the transport of waste water on the highway, while the waste water plants are regulated by the applicable City or County for the discharge of industrial waste water, by the applicable Air Pollution Control District or Air Quality Management District, by the applicable City or County for a CUP, and by the California State Resources Control Board for management of stormwater.

#### 2.2.8.6 Surface Water Monitoring

The Proposed Project will continue to implement the existing surface water monitoring program, including compliance with the existing CCL Stormwater Pollution Prevention Plan (SWPPP), the Stormwater Monitoring Program (SWMP), and the Spill Prevention, Control, and Countermeasure (SPCC) Plan, as described below.

The MRP requires stormwater monitoring consistent with the requirements of Water Quality Order No. 97-03-DWQ (WDRs for Discharge of Storm Waster Associated with Industrial Activities Excluding Construction Activities), adopted by the California State Water Resources Control Board under the National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001, as well as the SWPPP for the site. The purpose of the SWPPP is to identify stormwater control methods that reduce site erosion and pollutant transport from landfill operations. The SWPPP was also used in developing the SWMP for CCL. The SWMP has four objectives: (1) to monitor the quality of stormwater discharges, (2) to evaluate changing conditions and practices at the site to control pollutants in stormwater discharges, (3) to aid in the implementation of the SWPPP, and (4) to measure the effectiveness of best management practices (BMP), mandated by the state, in removing pollutants in stormwater discharge.

In addition to the SWPPP and SWMP, CCL has a SPCC Plan. The SPCC Plan was prepared pursuant to Title 40, Part 112 of the *Code of Federal Regulations* and establishes the procedures and equipment required to prevent discharge of oil and hazardous substances in quantities that violate applicable water quality standards. The SPCC Plan also establishes the activities required to mitigate such discharges if they occur.

Stormwater discharge from the site will continue to be sampled and analyzed in a manner consistent with the monitoring program outlined in the SWPPP and SWMP. Stormwater discharge samples will be analyzed for ammonia, biochemical oxygen demand, cyanide (total), nitrate and nitrite nitrogen, hydrogen ion concentration (pH), phosphorous (total), total suspended solids, specific conductance, oil and grease, volatile organic compounds, sulfate, chemical oxygen demand, total dissolved solids, and the following metals (total): antimony, arsenic, beryllium, cadmium, chromium, copper, iron, lead, magnesium, mercury, nickel, selenium, silver, thallium, and zinc.

### 2.2.8.7 Air and Landfill Gas Monitoring

The owners or operators of all MSW landfill units must implement routine surface and subsurface LFG monitoring programs. The surface and subsurface LFG monitoring program for CCL will continue in effect for the Proposed Project.

CCL has extensive LFG collection systems designed and operated in compliance with the South Coast Air Quality Management District (SCAQMD) Rule 1150.1 requirements for control of LFG emissions, EPA New Source Performance Standards/Emission Guidelines, and Landfill Methane Capture regulations. These LFG collection systems minimize the pressure gradients that could result in gas migration through the cover soil and underlying soils.

In accordance with SCAQMD Rules and EPA regulations, CCL has a site-specific Rule 1150.1 Compliance Plan, and has a Title V permit issued by SCAQMD. The Rule 1150.1 Compliance Plan requires CCL to evaluate the performance of the LFG collection and control system (GCCS) by monitoring monthly for the emission or migration of LFG from the landfill. Other parts of the Title V permit place performance standards and testing requirements on the LFG flare. LFG sampling is also required to evaluate the quality and components of the LFG being generated.

All landfill areas are monitored regularly to detect onsite LFG surface emissions or subsurface migration of LFG, as described below.

**Landfill Gas Subsurface Monitoring Program**

In addition to the SCAQMD requirements, Title 27 requires all landfills to have an approved LFG monitoring plan that includes multi-level LFG monitoring probes around the site boundary. CCL has a Title 27 LFG monitoring plan approved by the LEA and CalRecycle. This plan is based on site-specific factors, including soil conditions, hydrogeologic and hydraulic conditions, and the location of facility structures and property boundaries.

Currently, there are 25 perimeter LFG monitoring probes. Some of the probes are included in the SCAQMD monitoring program, some of the probes are included in the Title 27 monitoring program, and some are included in both. With development of the Proposed Project, existing monitoring probes GP-9, GP-10, GP-11, GP-12, GP-24, GP-25, GP-A, and W-2 will be abandoned. New perimeter monitoring probes will be installed to monitor the potential for gas migration east and north of the East Canyon and within the property boundary. Nine additional multi-level monitoring probes (GP-27 through GP-35) will be installed along the eastern and northern boundaries of East Canyon as shown in Figure 2-9. Prior to decommissioning existing perimeter gas monitoring probes and installation of replacement gas monitoring probes for the purposes of compliance with Title 27, approval will be obtained from the LEA and CalRecycle.

Monitoring is performed in a manner consistent with this Title 27 LFG monitoring plan. Monitoring consists of quarterly monitoring of perimeter probes to evaluate subsurface offsite migration and continuous monitoring within structures to evaluate the potential buildup of LFG. Reporting consists of quarterly reporting to present the results of the preceding activities to the LEA. Should LFG be detected above regulatory thresholds, CCL is required to prepare a corrective active plan for LEA and CalRecycle review and approval and to implement the plan once approved.

**LFG Surface Monitoring Program**

Monitoring consists of:

- Monthly instantaneous landfill surface monitoring to evaluate potential emissions on the landfill surfaces
- Quarterly integrated landfill surface monitoring to evaluate potential emissions on the landfill surfaces

- Ambient air sampling at the landfill site boundaries to evaluate the potential offsite migration of landfill emissions
- Quarterly and annual reporting to present the results of the preceding activities to the SCAQMD for review

The monitoring program is designed for CCL to identify surface emissions of LFG at the earliest possible moment. This compliance program requires CCL to mitigate or correct any such identified emissions or migration in a timely fashion, and to re-inspect the suspect area within a stated time period to confirm attainment of the standards.

**Greenhouse Gas Monitoring Program**

EPA has issued a rule requiring certain facilities, including landfills, to monitor and report greenhouse gas (GHG) emissions. The rule became effective January 1, 2010. The new rule requires a monitoring plan that identifies the key individuals collecting the data, data collection methods, calculation procedures, quality assurance protocols, equipment logs, and repair procedures. The Proposed Project will implement the existing GHG monitoring plan and will monitor and report GHG emissions as required by the rule.

In addition to the EPA GHG monitoring and reporting rule, the California Air Resources Board has adopted regulations requiring the reporting of GHG emissions from certain facilities, including LFGTE facilities. Reports are required following 1 year of operation and annually thereafter. The SCAQMD has incorporated the regulations into Rule 1150.1. The Proposed Project will comply with these regulations and submit a monitoring report after 1 year of operation of the extended landfill facilities.

#### 2.2.8.8 Nuisance and Health Hazard Monitoring

The existing nuisance, health hazard monitoring, and community outreach programs, described below, will continue in effect for the Proposed Project.

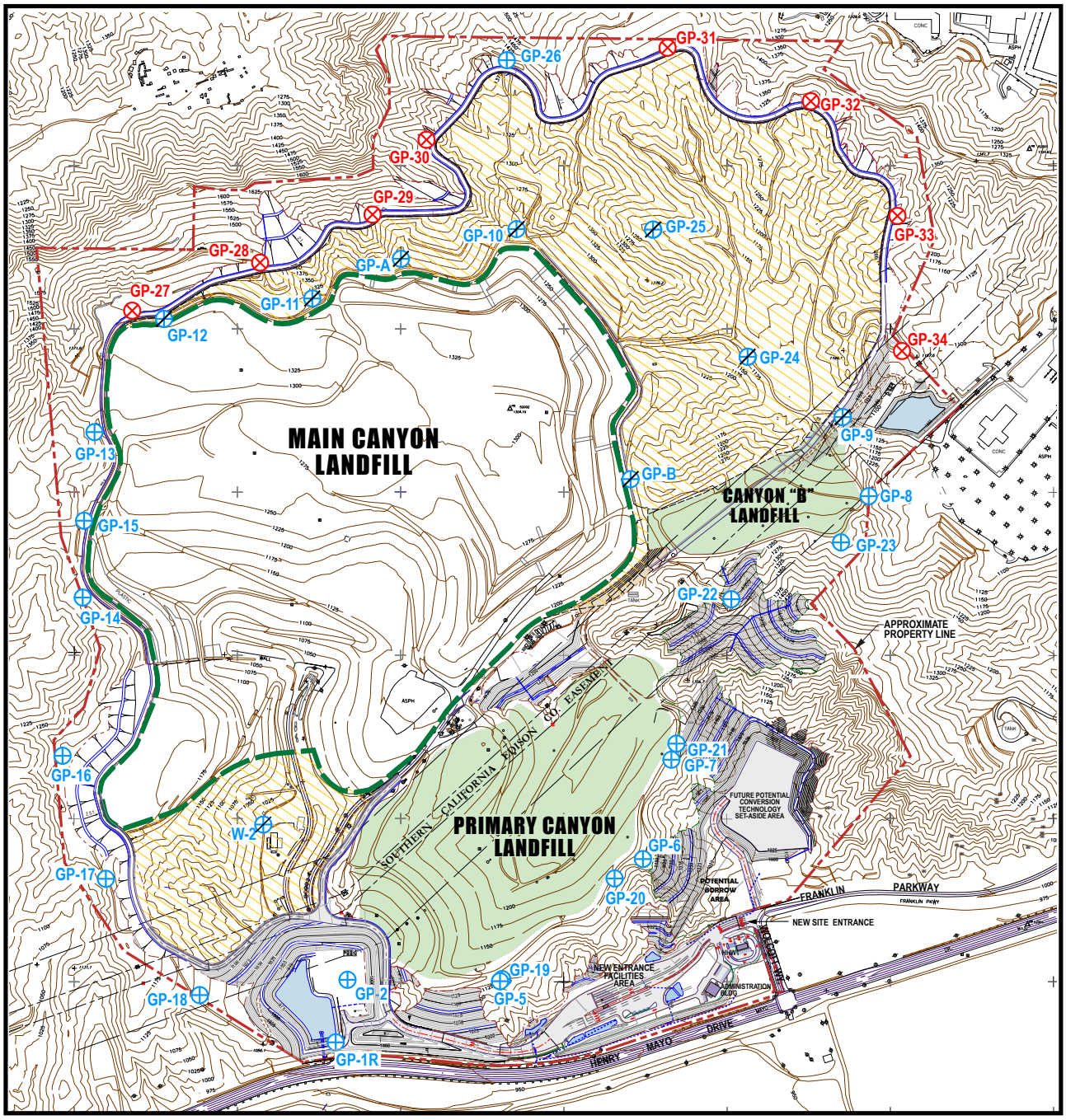
**Odor**

There are two potential sources of odor from landfill operations: aerobic (with air) decomposition of incoming organic waste, and gases produced by anaerobic (without air) bacterial digestion of buried waste.

Odors may result from incoming waste after it is emptied from the truck and before it is completely covered in the landfill. Any resulting odor is from the aerobic decomposition of organic waste materials. Most of the organic matter that enters the landfill, including cooked and uncooked foods and garden wastes, has begun to decompose before being delivered to the landfill. These wastes are aggressively managed to minimize odors potentially leaving the landfill area during the day through source control and best operating practices for waste disposal, as detailed below.

***Source Control***

- CCL can and does refuse to do business with customers or potential customers who generate highly odorous loads.
- CCL rejects trucks at the scales when there is an obvious highly odorous load.
- If a highly odorous load is detected while unloading, that waste is immediately covered to control odors.




Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Monitoring Locations Source:
R.T. Frankian & Associates

EN1030151026SCO CCL_proposed_gas_monitoring_2016.ai 9/16

**Figure 2-9.**
**Proposed Landfill Gas Monitoring System**
*Chiquita Canyon Landfill*
*Master Plan Revision*

***Best Operating Practices – Disposal***

- The size of the working face expands to accommodate disposal demand peaks, but then "shrinks" when demand subsides to minimize odors.
- The "shrinking" is achieved by covering the working face regularly throughout the day.
- CCL regularly exceeds state minimum standards and textbook rules-of-thumb for the use of soil and other beneficial use material to cover trash and other areas of the landfill. This is done to proactively minimize odors from fresh trash.
- CCL has a perimeter odor control system, which consists of a meteorological station located on the western boundary of the landfill that provides real-time information on wind speed and wind direction, plus a perimeter misting system over 1 mile long, attached to the litter fence located along the western and northern boundaries of the waste disposal area. When the combination of weather conditions and odorous loads has the potential to result in offsite migration of odors, CCL disperses odor neutralizing agents through the nozzles.
- CCL utilizes large portable fans that can move nearly 1 million cubic feet per minute of air to help control the direction of air flow and to dilute and disperse odors generated at the tipping area.

Anaerobic digestion of the buried waste produces LFG, the second source of odor. LFG consists primarily of carbon dioxide and methane, which are generally odorless, as well as trace amounts of volatile organic gases, which contain odors. As these natural gases are produced within the landfill, internal pressures move the gases along the paths offering the least resistance, which can be vertically through a permeable cover.

Odor problems may occur when cracks develop in the landfill surfaces due to landfill settlement or drying of cover soils, which allow the gases to escape into the environment. To prevent the release of odor-causing gases, an extensive GCCS has been installed at CCL. The collected LFG is either used as fuel in the onsite power plant (LFGTE plant) or combusted in a LFG flare. Landfill surfaces are monitored regularly for evidence of gas emissions. When emissions are detected, they are corrected by adjusting the GCCS or recompacting cover soils, or both. Proper maintenance of the soil cover (e.g., repairing any cracks) and the GCCS are proven to be effective at controlling LFG odors.

CCL typically installs LFG collection wells 6 months to 2 years before they start collecting gas. This early installation removes the guess work of when to install more wells. When routine monitoring indicates the need for additional gas collection, the collection wells are simply turned on, proactively controlling gas and resulting odors before odors are detected.

During compost processing, odors are controlled by maintaining aerobic conditions in the windrows where yard waste is deposited for composting. The compost windrows are monitored for temperature, oxygen content, and moisture on a daily basis to provide odor and process control.

**Fire Control**

CCL is located within Los Angeles County Fire Zone No. 4, which is a rugged, undeveloped area covered with chaparral, sage scrub, and non-native grassland. These vegetation communities can provide a heavy fuel-load fire hazard when mature. The climate of the region is characterized as Mediterranean. Winters are generally cool and moderately wet, while summers tend to be hot and dry. The area receives an average annual precipitation of 13 to 14 inches. The period of concern is during the summer and fall months when soil moisture is reduced and periods of Santa Ana winds are more likely to occur in combination with extremely low humidity.

Although very infrequent, the most common cause of a fire at a landfill is the dumping of a "hot load" or the spontaneous combustion of waste materials. Hot loads occur when people dispose of smoldering materials (e.g., coals) in their trash. That material is then transported to the landfill in a collection

vehicle, and is re-ignited when dumped from the truck and exposed to air. If a hot load is received, the waste is deposited in a safe area and extinguished. If a hot load has been placed in an active face, the burning waste is immediately excavated, spread, and extinguished. These types of small fires are easily extinguished by landfill personnel using water and/or soil. These situations do not typically require the assistance of the Los Angeles County Fire Department.

Landfill fires can also result when uncontrolled LFG is ignited by an external source. LFG contains methane, which is combustible when mixed with a specific amount of air and exposed to an external ignition source (e.g., a spark or flame). LFG mitigation is controlled at CCL by the landfill liner, landfill cover, and the GCCS that operates 24 hours a day, 7 days per week. Therefore, the risk of a fire associated with LFG is minimal. However, in the event of a subsurface fire, the following actions would be taken:

1) The portion of GCCS of concern would be shut down along with any wells in the area.
2) Water would be applied to the area and a dozer would track and pack the soil in place.
3) More soil would be added and watered and tracked again.
4) The impacted area and vicinity would be monitored for a period of several days or weeks to confirm corrective action success.

CCL will comply with applicable Los Angeles County Fire Department regulations. CCL will work closely with the fire department during development of the final site plan for CCL and when obtaining building permits for the new entrance facilities.

Fire prevention for landfill equipment and vehicles is provided by frequent cleaning of the equipment to remove combustible material. This involves removing debris and dust from undercarriages and engine compartments, regular washing of equipment, and checking for and repairing oil and fuel leaks. In addition, all of the heavy equipment that routinely operates in the trash has a built-in fire suppression system that automatically detects and extinguishes equipment fires. Also, portable fire extinguishers are carried in all landfill equipment and vehicles. The entrance facilities and maintenance buildings are also equipped with fire extinguishers suitable for extinguishing any minor fires and for maintaining personnel safety.

CCL currently maintains mobile firefighting equipment onsite 24 hours a day, 7 days per week. This equipment currently includes one 10,000-gallon water wagon, two 4,000-gallon water trucks, and four bulldozers. CCL has about 150,000 gallons of onsite water storage in various water storage tanks located throughout the site. Two of the tanks are connected to fire hydrants at the administrative office and the maintenance shop. Additionally, the water line from the Valencia Water Company tanks on the north end of the site has the ability to supply 50,000 gallons of water per hour and is equipped with multiple fire hydrants along the line.

As previously stated, minor fires that may occur in a waste fill are extinguished by landfill personnel using appropriate landfill equipment, stockpiled soil cover, and when necessary, a water truck. The Los Angeles County Fire Department is summoned if landfill personnel are unable to control and extinguish a fire or if specialty firefighting techniques are necessary.

Fire protection service for CCL is provided by the Los Angeles County Fire Department. CCL is within the area served by Station 76 at 27223 Henry Mayo Drive in Valencia. Station 76 is approximately 2.5 miles east of CCL, with an average response time of approximately 3 to 4 minutes (Hernandez, pers. comm., 2010).

In past fire seasons, CCL has been identified by Cal Fire and the Los Angeles County Fire Department as a resource to assist them during the fire season. Having a large open area, CCL could be used as a staging area for firefighting crews or as a landing area for helicopter assets. In addition, the 150,000 gallons of onsite water storage is also a resource for fire crews.

**Dust Control**

Landfill operations have the potential to create dust and are subject to SCAQMD Rule 403. Dust can be generated from earthwork, travel on unpaved roads, unloading trash from vehicles, and wind erosion of soil surfaces. CCL has a plan to mitigate fugitive dust emissions in compliance with SCAQMD Rule 403. Fugitive dust is controlled at CCL by paving permanent access roads, proper maintenance of haul roads (grading and watering), and frequent application of fine water spray or dust palliatives on soil-covered work areas, excavation areas, and stockpile areas, where conditions may cause the formation of fugitive dust. Controls also include timely placement of intermediate and final cover over the waste fill, application of water to intermediate soil cover when conditions might cause recurrent problems with fugitive dust; and maintenance of vegetative cover on completed fill slopes.

Additional dust control measures implemented at CCL include limiting onsite vehicle speed; directing onsite traffic by the most direct route possible; surfacing temporary unpaved onsite haul roads with low dust materials (e.g., rock material); applying mulch to inactive areas and inactive slopes where soil has been disturbed and/or to any other unvegetated areas; requiring covers on all inbound and outbound trucks; replacing ground cover in disturbed areas as quickly as possible; and using street sweepers on paved onsite haul roads and SR-126 on a daily basis.

**Vector Control**

A properly operated landfill does not present health hazards to adjacent land users because the sanitary landfill method minimizes the conditions for attracting or allowing the breeding of potential disease carriers such as birds, rodents, and flies. There is no history of vector problems or vector complaints at CCL.

Seagulls attracted to exposed waste are the primary vector control focus at CCL. The seagull population at the landfill varies during the summer and winter months. During the winter months (November through April), seagulls are generally present at the landfill. In the summer months (May through October), however, the seagull population is minimal to non-existent. No bird complaints have been received from waste haulers or adjacent landowners, and when present, site users and personnel do not consider the birds to be a nuisance or a problem.

Falcons are the primary method used to deter seagulls at CCL during active disposal operations. The falcons are not predatory, but their presence frightens the seagulls. When frightened, the birds take flight and are deterred from access to the exposed waste at the working face. When the falcons are not present, site personnel have the option to utilize a handheld device to launch whistling projectiles specially designed to frighten the birds without the risk of injuring them. These operational practices minimize the opportunities for birds to feed at the site, which minimizes bird populations, thus mitigating problems in the vicinity of the site. The use of falcons and other vector control measures also discourage scavenging by other nuisance birds, such as cowbirds and starlings.

The work area over which waste is spread is minimized, and the waste is properly compacted and covered each day. Thoroughly compacting the incoming wastes, covering wastes, and minimizing the work area over which waste is spread prevents the emergence of flies from eggs that are normally present in household waste. Fly problems have not existed at CCL.

Rodents normally cannot survive because the compaction and covering of waste eliminates both habitat and food. Site personnel frequently inspect site areas for signs of rodent activity. Rodent problems have not existed at CCL. If such activity is observed, site personnel will contact pest control specialists for professional advice and any services needed to ensure that a rodent nuisance does not develop.

**Litter**

Operation of a sanitary landfill has the potential to increase the presence of litter in and around the site. Moderate winds can distribute lightweight waste such as paper and plastic over quite a large area.

Two sources of litter result from the operation of the landfill; litter can escape from the trucks entering or exiting the site, and litter can be blown off the working face of the landfill.

CCL has an ongoing litter collection and tarping program to minimize litter in active areas and areas surrounding the site. Currently, portable and stationary litter control fences are utilized near the landfill working face. CCL personnel regularly patrol the landfill access road and perimeter and pick up litter blown from the site during high winds. All debris found on or along the entrance and access roads is removed as soon as possible. Temporary personnel are also hired, as necessary, to pick up litter. Additionally, CCL personnel patrol SR-126 near the landfill entrance on an as-needed basis, collecting illegally or inadvertently dumped waste. CCL is a sponsor of the Adopt-A-Highway program for approximately 3 miles of SR-126, from I-5 to Chiquito Canyon Road, as part of the Caltrans highway litter cleanup program.

Before leaving the landfill, open-bed trucks are required to either be swept clean of loose debris or covered with a tarp to minimize litter along SR-126. CCL has also instituted a tarping program that requires all incoming loads to be tarped. Improperly tarped loads are generally not a problem at CCL, but CCL is permitted by Condition 21 of the existing CUP to sell tarps to offenders, enforce punitive fines to offenders, and exclude repeat offenders from the landfill. Appropriate signs are posted at the site entrance notifying customers of the tarping requirements. Untarping is only allowed in the vicinity of the working face.

Condition 20 of the existing CUP includes policing a stretch of Chiquito Canyon Road from SR-126 to the entrance of Val Verde at Rancho Avilos for litter at a minimum of once per month, and providing quarterly free cleanup days to residents of Val Verde.

Litter is generally limited to the working face and slopes around the working face within the landfill's boundary. Typical landfill operations, such as compacting waste immediately after disposal and minimizing the working face, have limited the occurrence of fugitive litter.

**Noise Control**

The primary noise sources at CCL are the heavy equipment operating in the landfill and disposal trucks that deposit waste at the active face daily. Sound levels of onsite equipment are minimized through a vehicle maintenance program, which among other goals, ensures mufflers are properly maintained. Additionally, site topography aids in containing sound related to landfill operations within the limits of the site boundary.

The closest noise sensitive area is the rural residential community of Val Verde, which, at its closest point, is approximately 500 feet as the crow flies from the property boundary and approximately 0.50 miles from the existing landfill activities. The Val Verde community is separated from the landfill by a significant ridgeline which blocks the line of sight and serves as a very effective noise barrier. This feature will not change as a result of this project. Noise generated at CCL was not noticeable in Val Verde, as documented in noise monitoring conducted in 2005 and described in Chapter 13.0, Noise, and Appendix I of the Original Draft EIR.

## 2.2.9 Household Hazardous Waste Facility

### 2.2.9.1 Summary

| Baseline | Project | Change |
|---|---|---|
| Facility permitted under existing CUP until November 24, 2027, but not constructed or operating | New onsite facility | New onsite facility |

### 2.2.9.2 Detailed Description

An HHWF will be constructed at CCL. As shown in Figure 2-1, the facility will be located in the same area as the new landfill entrance and support facilities. However, the HHWF will be physically separate from the landfill and will have its own gated entrance and exit off the landfill entrance road, separate from the gated entrance and exit to the landfill. The HHWF will be a joint effort between CCL and Los Angeles County. CCL will design and construct the HHWF; the facility may be permitted by the County and operated by a party who entered into an operational agreement with the County.

The HHWF will be constructed and permitted to receive the following general materials:

- Household Hazardous Waste: paint and solvents; used motor oil and filters, anti-freeze, and other automotive fluids; cleaning products; pool and garden chemicals; aerosol cans; all medicine except controlled substances; auto batteries; household batteries

The HHWF would receive and store these materials in preparation for shipment to markets that would recycle the materials or shipment to a hazardous waste disposal site. Materials would be stored in quantities considered acceptable to the State Department of Toxic Substances Control. The HHWF will include areas for receiving, sorting, consolidation, and packing. The total area of the facility will be approximately 2,100 square feet. Secondary containment would be provided by sloped surfaces within the storage bays, a containment trench in the front of each storage bay, and concrete/masonry barriers around three sides of the storage bays. Facility personnel will inspect loads to determine whether the materials received are one of the recyclable household hazardous wastes specified in Section 25218.8(b) of the California Health and Safety Code. Figure 2-1 shows the location of the HHWF within the new entrance area, while Figure 2-10 illustrates the HHWF layout.

Operating hours for the HHWF will be 24 hours per day, 7 days per week, for purposes of processing materials, operating equipment, and/or maintaining the facility. Delivery of material to the HHWF by members of the general public will be limited to 6:00 a.m. to 8:00 p.m., 7 days per week. However, actual operating hours for the HHWF would be set by the County, and are anticipated to be 1 or 2 weekend days per month. The HHWF will be staffed continuously during operation by an individual trained in hazardous materials management.

Operation of the HHWF will be managed in accordance with federal, state, and local laws and regulations, specifically Title 22 CCR Chapters 23 and 26, and Section 25218 of the California Health and Safety Code. The HHWF would also be required to obtain:

- Health Permits for Storage of Recyclable Hazardous Materials from the Los Angeles County Health Department
- Hazardous Waste Identification Number from the State Department of Toxic Substances Control
- Finding of Conformance from the Los Angeles County Solid Waste Management Committee/ Integrated Waste Management Task Force
- Air Quality permit from the SCAQMD

The HHWF will strive to collect and deliver material to final destination by the end of each working week. Collected material will be documented and tracked to ensure they will be held on site for no more than 10 days. If the need to store material exceeds 10 days, the facility will be subjected to all applicable regulations required for a treatment, storage, and/or disposal facility (including permitting).

To ensure the health and safety of the surrounding residents and staff, the proposed HHWF will develop a Health and Safety/Operations Plan, as specified in Title 22, CCR and Section 67450.25, which describes emergency responses to ensure that incidents do not occur, recur, or spread. It will also detail safety arrangements with local authorities. The HHWF will also incorporate additional safety and security measures such as security fence, cameras, alarm, fire protection and sprinkler systems as well as a covered receiving area and spill containment area.

## 2.2.10 Mixed Organics Composting Facility

### 2.2.10.1 Summary

| Baseline | Project | Change |
|---|---|---|
| 560 tons per day green waste composting permitted under existing CUP until November 24, 2027, but not currently operating | 560 tons per day mixed organics composting | Restarting a processing/composting operation at 560 tons per day while adding pre- and post-consumer food waste |

### 2.2.10.2 Detailed Description

The Proposed Project includes continued green waste processing and composting operations allowed under the current CUP. The processing and composting operation that was located at the landfill since 1997 suspended operations in 2009 as a result of the economic downturn. Although it is currently inactive, CCL intends to resume operation in some manner in the future.

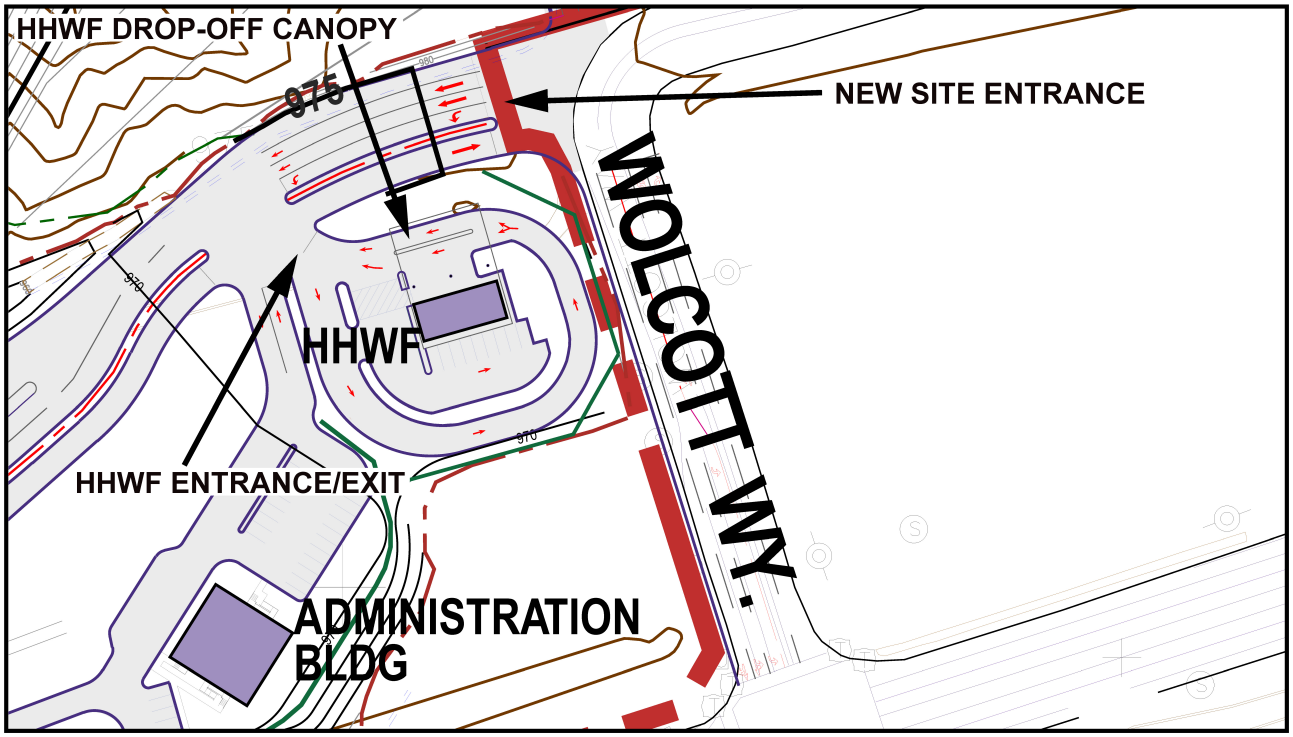
When it resumes operation, the facility is likely to be located on the landfill surface. As the landfill develops, the composting facility may be relocated periodically to accommodate landfill operations. The composting facility is permitted under the current CUP to receive up to 560 tons per day. The vehicles associated with 560 tons per day have been accounted for in the traffic analysis for the Proposed Project. The composting facility permitted in the current CUP is a green material composting facility; no food waste or sewage sludge is included. The green material is ground in a tub grinder and then formed into windrows. Windrows are turned periodically to prevent the windrows from becoming anaerobic. Water is added, as necessary, to maintain the proper moisture content. The composting material is typically kept in the windrows for 30 to 90 days. When the desired level of composting has been achieved, the compost material is moved to the curing area and formed into curing piles. The cured compost is screened to remove any large particles. The finished product is then transported offsite for sale or used onsite for erosion control. Small quantities are available to the general public at a steeply discounted price. The current CUP allows for either an open, “windrow system” as was previously employed, or an “in-vessel system”.

The feedstock for the composting operation under the current CUP is limited to shredded green waste, and prohibits waste water biosolids (sludge). In addition to shredded green waste from curb-side pick up or commercial landscape operations, the Proposed Project would also include pre- and post-consumer food waste as part of a “mixed organics” composting process and may also include a “static pile system”. Sludge will not be accepted as part of the composting facility. The composting project may also include green waste and food processing and shipping of process material to an offsite composting operation.

Stormwater from the composting process will be managed separately onsite from other stormwater flows, as required by current regulations.

The processing/composting operation is a mobile activity that will move within the landfill during the life of the Proposed Project. The processing/composting facility would be up to 41 acres and located within the existing and future landfill footprint, including the Primary Canyon and Canyon B. Based on the anticipated construction and operation of the landfill, it is anticipated that the processing/composting facility may be constructed and/or relocated at CCL three times during the life of the Proposed Project.

Operating hours for the composting operation will be 24 hours per day, 7 days per week. Access by customers for purposes of removing finished mulch biomass fuel, and compost will be limited to 6:00 a.m. to 8:00 p.m., 7 days per week, although actual hours may vary within this window.



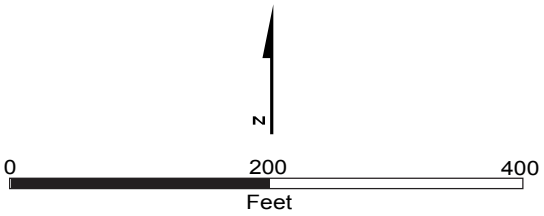




**Figure 2-10.**
**Household Hazardous Waste Facility Layout**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Source: Golder Associates, 2014

EN1030151026SCO CCL_HazWasteFacility_2016.ai 9/16

## 2.2.11 Land Set-Aside for Potential Future Conversion Technology Facility

### 2.2.11.1 Summary

| Baseline | Project | Change |
|---|---|---|
| No existing land set-aside or facility | New land set-aside | New land set-aside to promote and facilitate waste conversion technology |

### 2.2.11.2 Detailed Description

Los Angeles County is actively evaluating and promoting the development of conversion technologies to address the region's solid waste challenges. Development of in-County, commercial scale conversion technology facilities is a priority element in the County's component strategy for assuring long-term disposal capacity to meet the needs of Los Angeles County's over 10 million residents and thousands of businesses county-wide. Conversion technologies are non-combustion thermal, mechanical, and biological processes that convert post-recycled residuals (materials that would otherwise be sent to landfills) into green fuels like ethanol and biodiesel, clean renewable energy, and other marketable products.

CCL has included within the Project Description a set-aside of a portion of the site within the existing CCL property boundary that could be used for a potential future conversion facility. The location of the property set-aside is shown in Figure 2-1. Conceptual grading required for a conversion facility is shown in Figure 2-3, as well as the location of a road that would provide access to the facility from the site entrance. The Proposed Project does not include design, permitting, construction or operation of a conversion facility.

In its Six-Month Status Update: April 2013 through October 2013 to the Board Motion of April 20, 2010, Item No. 44 Conversion Technologies in the County of Los Angeles, LACDPW provided a status update of the efforts LACDPW has undertaken to advance conversion technology development in the County. These efforts included:

- Supporting the passage of legislation to advance conversion technologies in California
- Conducting a conversion technology survey with public and private stakeholders regarding legislative actions, regulatory changes, and incentives necessary to facilitate development of conversion technologies in California
- Issuing a Request for Expressions of Interest to technology vendors and financial firms for information to be included in the LACDPW online database
- Continuing technical and planning services and information to potential conversion technology projects located in the County.

Anaerobic digestion is a type of conversion technology "in which biodegradable organics are converted by a series of bacteria into compost, methane, and carbon dioxide" (http://www.socalconversion.org/technologies/definitions). Anaerobic digestion is the biological decomposition of organic matter with little or no oxygen producing a biogas composed primarily of carbon dioxide and methane (though some systems can be operated to produce some hydrogen gas with less methane product). The anaerobic decomposition (not digestion) yielding methane process occurs naturally in marshes, and wetlands, landfills, ruminants, and certain insects. There are a variety of controlled systems where anaerobic decomposition technology is currently utilized in the United States including wastewater treatment facilities and dairy manure digesters and co-digesters. In other countries (primarily in Europe), Anaerobic Digestion technology is utilized to process and treat the organic fraction of MSW to recover energy and to reduce the volume of solid waste that must be

landfilled. LACDPW has indicated a general interest in an Anaerobic Digestion Facility that could be co-located at an existing solid waste management facility, in part because anaerobic digestion is complementary to traditional MSW disposal. For example, at a solid waste landfill facility such as CCL, green and food waste could be diverted from the landfill waste stream prior to disposal and then processed to create energy.

CalRecycle is the state agency responsible for statewide solid waste management and recycling programs. To assist in the siting and permitting of anaerobic digestion facilities in California, CalRecycle has prepared a Program Environmental Impact Report (EIR) for Statewide Anaerobic Digester Facilities for the Treatment of Municipal Organic Solid Waste. The Program EIR supports the CalRecycle Anaerobic Digestion (AD) Initiative, which includes a statewide strategic policy directive to reduce by 50 percent the amount of organic waste disposed in the state's landfills by 2020. The CalRecycle policy recognizes that organic wastes are a resource, not just solid wastes that must be disposed. Organic wastes have an energy value that can be captured and utilized, and are also a necessary component of compost, soil amendments, and other useful products.

The Final Program EIR and associated background and guidance documents can be found on the CalRecycle website: http://calrecycle.ca.gov/SWFacilities/Compostables/AnaerobicDig/default.htm#EIR.

The Program EIR determined that on a program level all the impacts of AD facilities could be mitigated to a less-than-significant level with implementation of the mitigation measures. Individual projects could result in localized or site-specific impacts that would need to be analyzed in a tiered California Environmental Quality Act (CEQA) document.

The Program EIR examined the following potentially significant environmental impacts: Air Quality and Greenhouse Gas, Hydrology and Water Quality, Noise, Public Services and Utilities, Transportation, Aesthetics, Hazards and Hazardous Materials, and Other CEQA Considerations (such as Cumulative and Growth-Inducing Impacts, Significant and Unavoidable Environmental Impacts, etc.).

The following is a detailed summary of potentially significant impacts and mitigation measures identified in the CalRecycle Program EIR for AD facilities, with the numeric convention retained from the Program EIR:

**Impact 5.1:** Construction and operations of AD facilities within California would result in emissions of criteria air pollutants at levels that could substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions.

**Measure 5.1a:** Applicants shall prepare and submit an Air Quality Technical Report as part of the environmental assessments for the development of future AD facilities on a specific project-by-project basis. The technical report shall include an analysis of potential air quality impacts for all steps of the project (including a screening level analysis to determine if construction and operation [for all onsite processes, including any end-use and disposal methods] related criteria air pollutant emissions would exceed applicable air district thresholds, as well as GHG emissions and any health risk associated with toxic air contaminants [TAC] from all AD facility sources) and reduction measures. Preparation of the technical report should be coordinated with the appropriate air district and shall identify compliance with all applicable New Source Review and Best Available Control Technology (BACT) requirements. The technical report shall identify all project emissions from permitted (stationary) and non-permitted (mobile and area) sources and mitigation measures (as appropriate) designed to reduce significant emissions to below the applicable air district thresholds of significance, and if these thresholds cannot be met with mitigation, then the individual AD facility project could require additional CEQA review or additional mitigation measures.

**Measure 5.1b:** Applicants shall require construction contractors and system operators to implement the following BMPs as applicable during construction and operations:

- Facilities shall be required to comply with the rules and regulations from the applicable Air Quality Management District or Air Pollution Control District.
- Facilities shall require substrate unloading and pre-processing activities to occur indoors within enclosed, negative pressure buildings. Collected foul air (including volatile organic compounds (VOC) off gassed from undigested substrates) should be treated via bio filter or air scrubbing system.
- Use equipment meeting, at a minimum, Tier II emission standards.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes (as required by the state airborne toxics control measure [Title 13 CCR Section 2485]). Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all equipment in proper working condition according to manufacturer's specifications.
- Use electric equipment when possible. For projects that are unable to use internal combustion engines due to air district regulations (i.e., NOx emission limits), other options for generating renewable energy from biogas should be considered. Other options that should be evaluated for using biogas or biomethane as an energy source include: use as a transportation fuel (compressed biomethane), use in fuel cells to generate clean electricity, use for onsite heating, or injection of biomethane into the utility gas pipeline system. If there are other lower NOx alternative technologies available at the time of AD facility development, these should be considered as well during the facility design process.

**Impact 5.2:** Operation of AD facilities in California could potentially create objectionable odors affecting a substantial number of people.

**Measure 5.2a:** Applicants for the development of AD facilities shall comply with appropriate local land use plans, policies, and regulations, including applicable setbacks and buffer areas from sensitive land uses for potentially odoriferous processes.

**Measure 5.2b:** If an AD facility handles compostable material and is classified as a compostable material handling facility, the facility must develop an Odor Impact Minimization Plan pursuant to 14 CCR 17863.4. Otherwise, applicants shall develop and implement an Odor Management Plan that incorporates equivalent odor reduction controls for digester operations and is consistent with local air district odor management requirements. These plans shall identify and describe potential odor sources, as well as identify the potential, intensity, and frequency of odor from these likely sources. In addition, the plans will specify odor control technologies and management practices that if implemented, would mitigate odors associated with the majority of facilities to less than significant. However, less or more control measures may be required for individual projects. Odor control strategies and management practices that can be incorporated into these plans include, but are not limited to, the following:

- Require substrate haulage to the AD facility within covered, liquid leak-proof containers.
- Establish time limit for onsite retention of undigested substrates (i.e., feedstocks should be processed and placed into the portion of the system where liquid discharge and air emissions can be controlled within 24 or 48 hours of receipt).
- Provide enclosed, negative pressure buildings for indoor receiving and pre-processing.
- Treat collected foul air in a biofilter or air scrubbing system.
- Establish contingency plans for operating downtime (e.g., equipment malfunction, power outage).
- Manage delivery schedule to facilitate prompt handling of odorous substrates.

- Handle fresh unstable digestate within enclosed building, or mix with green waste and incorporate into a composting operation within the same business day, and/or directly pump to covered, liquid leak-proof containers for transportation.
- Protocol for monitoring and recording odor events.

**Impact 5.3:** Construction and operation of AD facilities in California could potentially lead to increases in chronic exposure of sensitive receptors in the vicinity to certain TACs from stationary and mobile sources.

**Measure 5.3a:** Implement Mitigation Measures 5.1a and 5.1b.

**Measure 5.3b:** Based on the Air Quality Technical Report (specified in Measure 5.1a), if the health risk is determined to be significant on a project-by-project basis with diesel particulate matter (DPM) as a major contributor, then the applicants shall implement control measures such that the AD facility health risk would be below the applicable air district threshold, which may include implementation of one or more of the following requirements, where feasible and appropriate:

- Use either new diesel engines that are designed to minimize DPM emissions (usually through the use of catalyzed particulate filters in the exhaust) or retrofit older engines with catalyzed particulate filters (which will reduce DPM emissions by 85%);
- Use electric equipment to be powered from the grid, which would eliminate local combustion emissions;
- Use alternative fuels, such as compressed natural gas or liquefied natural gas.

**Measure 5.3c:** Hydrogen sulfide (H2S) contained in the biogas shall be scrubbed (i.e., via iron sponge or other technology) before emission to air can occur.

**Impact 5.4:** Development of AD facilities in California could increase GHG emissions.

**Measure 5.4:** Implement Mitigation Measure 5.1a.

**Impact 5.5:** Development of AD facilities in California, together with anticipated cumulative development in the area, would contribute to regional criteria pollutants.

**Measure 5.5:** Implement Mitigation Measures 5.1a and 5.1b.

**Impact 6.2:** The operation of AD facilities could adversely affect surface and groundwater quality.

**Measure 6.2a:** During pre-processing, all water that contacts digester feedstock, including stormwater from feedstock handling and storage facilities and water from equipment washdown and feedstock wetting, shall be contained until appropriately disposed or utilized. BMPs may be used to reduce loading of sediment, nutrients, trash, organic matter, and other pollutants. These BMPs may include, but are not limited to, trash grates and filters, oil-water separators, mechanical filters such as sand filters, vegetated swales, engineered wastewater treatment wetlands, settling ponds, and other facilities to reduce the potential loading of pollutants into surface waters or groundwater. All discharges of stormwater are prohibited unless covered under the General Industrial Stormwater Permit, other NPDES permit, or are exempted from NPDES permitting requirements. The NPDES permits will generally require implementation of management measures to achieve a performance standard of best available technology economically achievable and best conventional pollutant control technology, as appropriate. The General Industrial Stormwater Permit also requires the development of a SWPPP and a monitoring plan, in compliance with permit requirements. Other liquid and solid wastes may only be discharged pursuant to an NPDES permit or WDR order.

**Measure 6.2b:** In order to minimize the amount of fugitive trash or feedstock released to surface waters, the following measures shall be implemented. When feasible, the project proponent shall preferentially select feedstocks that contain minimal amounts of trash that could become entrained in

surface water, either via direct contact with stormwater flows or via other accidental release, such as due to wind. Processing of such feedstocks may, however, be unavoidable, such as in support of an AD facility that processes MSW. Therefore, the project applicant shall ensure that (1) drainage from all feedstock loading, unloading, and storage areas is contained onsite or treated to remove trash and stray feedstock, and sediment prior to release as permitted; (2) in all feedstock loading and unloading areas, and all areas where feedstock is moved by front loaders or other uncovered or uncontained transport machinery, the applicant shall ensure that mechanical sweeping and/or equivalent trash control operational procedures are performed at least daily, during operations; and (3) the facility operator shall train all employees involved in feedstock handling so as to discourage, avoid, and minimize the release of feedstock or trash during operations.

**Measure 6.2c:** In order to minimize water quality degradation associated with accidental spills at AD facilities, the applicant for individual projects that would be implemented under the Program EIR shall require project proponents to complete and adhere to the requirements of an SPCC Plan, which is based on the federal SPCC rule. Notification of the SPCC Plan shall be provided to the local Certified Unified Program Agency. The SPCC Plan shall contain measures to prevent, contain, and otherwise minimize potential spills of pollutants during facility operation, in accordance with EPA requirements. For individual projects that would utilize wet digestion systems, in which processing and holding tanks would contain the (aqueous) digestion reaction and liquid digestate containing fats and oils, the SPCC Plan shall provide for installation and monitoring of secondary containment and/or leak detection systems to ensure that AD liquids are not accidentally discharged to navigable waters or adjoining shorelines. Monitoring of these systems shall be in accordance with SPCC Plan requirements.

**Measure 6.2d:** Any proposed discharge to a pond for an individual project would require the project applicant to acquire WDRs from the appropriate regional board. The project applicant shall ensure that all ponds and discharges to such ponds adhere to all requirements under applicable WDRs. The need for pond liners in order to protect groundwater quality would be assessed during the regional board's review of the project, and requirements for pond liners would be included in the WDRs, as warranted. If appropriate, the WDRs would impose requirements for Class II surface impoundments as presented in Title 27 CCR. Requirements include, but are not limited to, groundwater monitoring, double liner systems with leachate collection, water balance, a preliminary closure plan for clean closure, seismic analysis, and financial assurances. Compliance with WDRs may require the installation of facilities such as tanks and containers to store and process the digestate, the use of filter presses, and implementation of other water quality protection practices.

**Measure 6.2e:** This measure would reduce potential for the movement of nutrients and other pollutants to groundwater and surface water for individual projects that would employ land application for liquid digestate or residual solids. The operators of individual projects implemented under this Program EIR shall ensure that land application of liquid digestate and/or residual solids adheres to all requirements of an anti-degradation analysis, and in some cases best practicable treatment and control to achieve salinity reduction in materials prior to discharge to land. WDRs would be issued by the appropriate regional board, and would consider site-specific conditions and waste characteristics, in order to determine applicable control measures and procedures that protect water quality.

**Measure 6.2f:** This measure would reduce the potential for water quality degradation from projects that include discharge of liquid digestate to surface waters. The applicant for individual projects implemented under this Program EIR shall ensure that the discharge of liquid digestate to surface waters adheres to all NPDES permitting recommendations and requirements, as established by the appropriate regional board. Specific measures may include, but are not limited to, limitations on discharge volumes, seasonal discharge restrictions, limitations on loading rates and/or concentrations of specific constituents, and other facility-specific water quality control measures designed to protect receiving water quality and preserve beneficial uses identified in Basin Plans.

**Impact 6.3:** AD facilities could be exposed to flooding hazards.

**Measure 6.3:** Individual applicants seeking coverage under this Program EIR shall ensure that, for their proposed AD facilities including pre-processing areas, feedstock storage areas, and digestate handling facilities, are protected from Federal Emergency Management Agency-defined 100-year flood events. Design measures may include, but are not limited to: facility siting, access placement, grading, elevated foundations, and site protection such as installation of levees or other protective features.

**Impact 6.4:** Construction of AD facilities could change drainage and flooding patterns.

**Measure 6.4:** In order to ensure that the AD facilities would not result in detrimental increases in stormwater flow or flooding on site or downstream, the Applicant for each AD facility project shall prepare a comprehensive drainage plan (prior to construction) and implement the plan during construction. The comprehensive drainage plan shall include engineered stormwater retention facility designs, such as retention basins, flood control channels, storm drainage facilities, and other features as needed to ensure that, at a minimum, no net increase in stormwater discharge would occur during a 10-year, 24-hour storm event, as a result of project implementation. Project related increases in stormwater flows shall be assessed based on proposed changes in impervious surface coverage on site, as well as proposed grading and related changes in site topography.

**Impact 6.5:** AD facilities could require additional water supplies resulting in depletion of available water supplies.

**Mitigation 6.5:** None required. Is dependent on a case-by-case analysis.

**Impact 6.6:** AD facilities could become inundated as a result of seiche, tsunami, or mudflow.

**Measure 6.6:** To ensure that proposed AD facilities would not incur impacts associated with seiche, tsunami, or mudflow, the applicant for each individual project shall ensure that all facilities are located outside of potential risk areas for seiche, tsunami, and mudflow. In the event that a proposed facility would be sited within a potential risk area for one of these hazards, the facility shall be raised above projected maximum base inundation elevations, or shall be protected from inundation by the installation of berms, levees, or other protective facilities.

**Impact 6.7:** AD facilities could contribute to cumulative impacts to water quality.

**Measure 6.7:** Implement Mitigation Measures 6.2 (a-f) and 6.3.

**Impact 7.1:** Construction of AD facilities could temporarily increase noise levels at nearby sensitive receptor locations or result in noise levels in excess of standards in local general plans, noise ordinances, or other applicable standards.

**Measure 7.1a:** Construction activities shall be limited to the hours between 7 a.m. and 7 p.m., Monday through Saturday, or an alternative schedule established by the local jurisdiction, or other limits to construction hours normally enforced by the local jurisdiction (see Measure 7.1d below).

**Measure 7.1b:** Construction equipment noise shall be minimized by muffling and shielding intakes and exhaust on construction equipment to a level no less effective than the manufacture's specifications, and by shrouding or shielding impact tools.

**Measure 7.1c:** Construction contractors within 750 feet of sensitive receptors shall locate fixed construction equipment, such as compressors and generators, and construction staging areas as far as possible from nearby sensitive receptors.

**Measure 7.1d:** Construction contractors shall comply with all local noise ordinances and regulations and other measures deemed necessary by the Lead Agency.

**Impact 7.2:** Noise from operation of AD facilities could substantially increase ambient noise levels at nearby land uses or result in noise levels in excess of standards in local general plans, local noise ordinances, or other applicable standards.

**Measure 7.2:** AD facilities located within 2,000 feet of a sensitive receptor shall conduct a site specific noise study. If operational sound levels would exceed local regulations, or 45 A-weighted decibels at a sensitive receptor (if no regulations are available), additional sound-proofing such as enclosures, muffling, shielding, or other attenuation measures shall be installed to meet the required sound level.

**Impact 7.4:** Development of AD facilities could result in a cumulative increase in noise levels.

**Measure 7.4:** Implement Mitigation Measures 7.1a through 7.1d and Measure 7.2.

**Impact 8.1:** The project could substantially increase demands on fire protection services.

**Measure 8.1:** Implement Mitigation Measures 10.1b, 10.3c, and 11.4a.

**Impact 8.2:** The project could potentially exceed wastewater treatment requirements of the RWQCB.

**Measure 8.2a:** Implement Mitigation Measure 8.3b if the operator does not have an existing agreement, such as for co-located facilities.

**Measure 8.2b:** In addition to an agreement for service, coordination with the wastewater treatment provider would be needed to determine if pre-treatment would be required to meet the RWQCB requirements for the existing wastewater treatment facility.

**Impact 8.3:** The project could result in significant environmental effects from the construction and operation of new water and wastewater treatment facilities or expansion of existing facilities.

**Measure 8.3a:** If the project proposes to obtain water from a water supplier (municipal system or other public water entity), the developer would enter into an agreement for service with the supplier.

**Measure 8.3b**: If the project proposes to obtain wastewater service from a wastewater treatment provider (municipal or other public entity), the developer would enter into an agreement for service with the provider.

**Measure 8.3c:** Alternate water sources, such as non-potable and recycled water, shall be used during the pre-processing and AD process phases where needed and as available.

**Impact 8.6:** The project could result in exceeding the capacity of a wastewater treatment provider.

**Measure 8.6:** If the project proposes to obtain wastewater service from a wastewater treatment provider (municipal or other public entity), implement Mitigation Measure 8.3b.

**Impact 8.7:** The project could result in the construction of new energy supplies and could require additional energy infrastructure.

**Measure 8.7:** Projects requiring offsite energy infrastructure must complete CEQA review for the proposed energy improvements as a separate project. Infrastructure improvements may qualify as a categorical exemption pursuant to CEQA.

**Impact 9.1:** Construction of AD facilities would intermittently and temporarily increase traffic congestion due to vehicle trips generated by construction workers and construction vehicles on area roadways.

**Measure 9.1:** The contractor(s) will obtain any necessary road encroachment permits prior to installation of pipelines within the existing roadway right-of-way. As part of the road encroachment permit process, the contractor(s) will submit a traffic safety / traffic management plan (for work in the public right-of-way) to the agencies having jurisdiction over the affected roads. Elements of the plan will likely include, but are not necessarily limited to, the following:

- Develop circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible. Use flaggers and/or signage to guide vehicles through and/or around the construction zone.
- To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours.
- Limit lane closures during peak traffic hours to the extent possible. Restore roads and streets to normal operation by covering trenches with steel plates outside of allowed working hours or when work is not in progress.
- Limit, where possible, the pipeline construction work zone to a width that, at a minimum, maintains alternate one-way traffic flow past the construction zone.
- Install traffic control devices as specified in Caltrans' Manual of Traffic Controls for Construction and Maintenance Work Zones where needed to maintain safe driving conditions. Use flaggers and/or signage to safely direct traffic through construction work zones.
- Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, hospitals, and schools. Provide advance notification to the facility owner or operator of the timing, location, and duration of construction activities.
- Coordinate with the local public transit providers so that bus routes or bus stops in work zones can be temporarily relocated as the service provider deems necessary.

**Impact 9.2:** AD facility operations would not substantially increase on-going (operational) traffic volumes on roadways serving the facilities.

**Measure 9.2:** Measures will be imposed by applicable local agencies, as needed, to address site specific significant traffic impacts identified during subsequent facility-specific analyses, implementation of which would reduce those impacts to a less-than-significant level.

**Impact 9.3:** AD facilities could potentially cause traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways, and could increase traffic hazards due to possible road wear or to accidental spills of digestate (liquids and solids).

**Measure 9.3a:** Implement Measure 9.1, which stipulates actions required of the contractor(s) to reduce potential traffic safety impacts to a less-than-significant level.

**Measure 9.3b:** Prior to construction, the contractor(s), in cooperation with the agencies having jurisdiction over the affected roadways, will survey and describe the preconstruction roadway conditions on rural roadways and residential streets. Within 30 days after construction is completed, the affected agencies will survey these same roadways and residential streets in order to identify any damage that has occurred. Roads damaged by construction will be repaired to a structural condition equal to the condition that existed prior to construction activity.

**Measure 9.3c:** Prior to initiation of project operations, the project sponsor(s) will submit a Spill Prevention Plan to the appropriate local agency. The Spill Prevention Plan will include, among other provisions, a requirement that each truck driver know how to carry out the emergency measures described in the Spill Prevention Plan (therefore reducing roadway hazards if an accidental spill were to occur).

**Impact 9.4:** AD facilities could intermittently and temporarily impede access to local streets or adjacent uses (including access for emergency vehicles), as well as disruption to bicycle/pedestrian access and circulation.

**Measure 9.4:** Implement Measure 9.1, which stipulates actions required of the contractor(s) to reduce potential access impacts to a less-than-significant level.

**Impact 9.5:** The project could contribute to cumulative impacts to traffic and transportation (traffic congestion, traffic safety, and emergency vehicle access).

**Measure 9.5a:** Prior to construction, the project sponsor will coordinate with the appropriate local government departments, Caltrans, and utility districts and agencies regarding the timing of construction projects that would occur near AD project sites. Specific measures to mitigate potential significant impacts will be determined as part of the interagency coordination, and could include measures such as employing flaggers during key construction periods, designating alternate haul routes, and providing more outreach and community noticing.

**Measure 9.5b:** Implement Mitigation Measure 9.2.

**Measure 9.5c:** Implement Mitigation Measures 9.1, 9.3b and 9.3c.

**Impact 10.1:** AD facilities could have adverse effects on a scenic vista and/or scenic resources.

**Measure 10.1a:** Avoid siting AD facilities near scenic vistas and corridors designated within an applicable land use plan and the State Scenic Highway Program.

**Measure 10.1b:** Landscaping and/or vegetated berms should be used to minimize views of facilities from sensitive views.

**Impact 10.2:** AD facilities could degrade the existing visual character/quality of the site and its surroundings.

**Measure 10.2a:** Implement Mitigation Measures 10.1a and 10.1b.

**Measure 10.2b:** Facilities using truck tippers or other un-enclosed unloading should consider using litter fences to manage blowing litter. Facilities should educate haulers delivering materials to the AD facility through literature, web links, or provide training on the acceptance of waste at the facilities to minimize litter. Facility operators should develop a protocol to identify feedstocks that are severely contaminated with potential litter and reject unacceptable loads.

**Measure 10.2c:** Clean-up crews can be used as necessary to control litter.

**Measure 10.2d:** Feedstocks and digestate byproducts should be stored in enclosed facilities or processed in a timely manner to prevent visibly deteriorated site conditions.

**Measure 10.2e:** Project operators should consider enclosure of pre-processing operations if it provides an aesthetic and/or noise attenuating benefit.

**Impact 10.3:** AD facilities could create a new source of light or glare with adverse effects to daytime and/or nighttime views.

**Measure 10.3a:** Implement 10.1b.

**Measure 10.3b:** Any lighting (portable or permanent) should be hooded and directed onto the project site. This would reduce effects to nighttime skies from uplighting, reduce glare, and prevent light from spilling onto adjoining properties and roads.

**Measure 10.3c:** Flares may be enclosed to reduce the visibility of flames during operation.

**Impact 10.4:** The project could result in cumulative impacts to visual resources.

**Measure 10.4:** Implement Mitigation Measures 10.1a, 10.1b, 10.2a, 10.2b, 10.2c, 10.2d, 10.2e, 10.3a, 10.3b, and 10.3c.

**Impact 11.1:** Construction of AD facilities could result in the potential exposure of construction workers, the public and the environment to preexisting soil and/or groundwater contamination.

**Mitigation Measure 11.1:** Prior to final project design and any earth disturbing activities, the applicant or agency(ies) responsible shall conduct a Phase I Environmental Site Assessment (ESA). The Phase I ESA

shall be prepared by a Registered Environmental Assessor or other qualified professional to assess the potential for contaminated soil or groundwater conditions at the project site; specifically in the area proposed for construction of AD facilities. The Phase I ESA shall include a review of appropriate federal, State and local hazardous materials databases to identify hazardous waste sites at onsite and offsite locations within a one quarter mile radius of the project location. This Phase I ESA shall also include a review of existing and past land uses through aerial photographs, historical records, interviews of owners and/or operators of the property, observations during a reconnaissance site visit, and review of other relevant existing information that could identify the potential existence of contaminated soil or groundwater.

If no contaminated soil or groundwater is identified or if the Phase I ESA does not recommend any further investigation then the project applicant or agency(ies) responsible shall proceed with final project design and construction.

If existing soil or groundwater contamination is identified, and if the Phase I ESA recommends further review, the applicant or agency(ies) responsible shall retain a Registered Environmental Assessor to conduct follow-up sampling to characterize the contamination and to identify any required remediation that shall be conducted consistent with applicable regulations prior to any earth disturbing activities. The environmental professional shall prepare a report that includes, but is not limited to, activities performed for the assessment, summary of anticipated contaminants and contaminant concentrations at the proposed construction site, and recommendations for appropriate handling of any contaminated materials during construction.

**Impact 11.3:** Transportation, use, disposal or accidental spill of hazardous materials during the operation and maintenance of AD facilities would not result in potential harmful exposures of the public or the environment to hazardous materials.

**Mitigation Measure 11.3:** Implement Mitigation Measures 5.1a and 6.2a-f.

**Impact 11.4:** Operation of AD facilities could increase the risk of fire hazards due to the potential release of biogas.

**Mitigation Measure 11.4a:** Prior to project approval, AD facility operators shall prepare and implement a Fire Safety Plan that outlines fire hazards, describes facility operations procedures to prevent ignition of fires, requires regular inspection of fire suppression systems, and provides for worker training in safety procedures as well as protocols for responding to fire incidents. The Fire Safety Plan shall be reviewed and approved by the local fire enforcement agency.

**Mitigation Measure 11.4b:** Implement Mitigation Measure 11.5.

**Impact 11.5:** AD facilities could be located within one quarter mile of a school resulting in potential hazards associated with accidental release of hazardous materials, including biogas.

**Mitigation Measure 11.5:** AD facilities shall be sited at least one quarter mile from existing or proposed schools, daycare facilities, hospitals and other sensitive land uses.

**Impact 11.7:** AD facilities could be located within 5 miles of a public airport or private airstrip and create an aviation hazard.

**Mitigation Measure 11.7:** For any AD facility proposed within 5 statute miles of an airport's air operations area, the operator will notify the Federal Aviation Administration Regional Airports Division office and the airport operator of the proposed facility as early in the process as possible. AD facilities with any open air (outdoor) activities must receive a Federal Aviation Administration Determination of No Hazard prior to project approval.

**Impact 11.8:** Development of AD facilities could contribute to cumulative impacts related to hazardous materials.

**Mitigation Measure 11.8:** Implement Mitigation Measures 11.1, 11.4, 11.5, and 11.7.

If an anaerobic digestion facility is constructed in the future, it will be subject to various governmental approvals, primarily at the local level, and may be a "project" subject to the requirements of CEQA. In considering a specific anaerobic digestion facility, and based on site-specific conditions and circumstances, the Lead Agency (presumably Los Angeles County) will be required to adopt appropriate mitigation measures among those specified in the Final Program EIR and others as necessary to avoid or substantially lessen the significant environmental effects of the project. The Mitigation and Monitoring Program for the Program EIR can be found in Appendix B to the Original Draft EIR.

## 2.2.12 Landfill Gas-to-Energy Plant

### 2.2.12.1 Summary

| Baseline | Project | Change |
|---|---|---|
| Existing 9.2-megawatt Landfill Gas-to-Energy Plant | Continued operation of 9.2-megawatt Landfill Gas-to-Energy Plant | No change |

### 2.2.12.2 Detailed Description

CCL has an existing 9.2-megawatt LFGTE Plant operated by Ameresco Chiquita Energy LLC (Ameresco) and permitted by Los Angeles County. The LFGTE plant uses LFG extracted from the landfill's existing LFG collection system and converts it into energy using LFG-fueled gas turbines. Energy from the LFGTE plant, enough to power approximately 10,000 homes per year, is delivered to the local electrical grid. The LFGTE plant is centrally located on the site, in the vicinity of the existing LFG flare and blower (Figure 2-3). Access to the LFGTE plant is provided by the landfill's existing paved and all-weather access road.

The LFGTE plant began commercial operation in November 2010. Except for scheduled downtime and repairs, the plant operates continuously 24 hours a day, 7 days per week, and is staffed with two full-time onsite employees. The LFGTE plant has been designed to meet BACT emission limits.

The LFGTE plant will continue to operate at CCL independent of the Proposed Project according to pertinent regulations and permits so as to not impact the environment.

# 2.3 Landfill Closure and Post-Closure

## 2.3.1 Setting

| Baseline | Project | Change |
|---|---|---|
| Closure activities requiring the approval of RWQCB, the LEA, and CalRecycle | Closure activities requiring the approval of RWQCB, the LEA, and CalRecycle | No change |

## 2.3.2 Detailed Description

### 2.3.2.1 Landfill Closure

Landfill closure will occur on an incremental basis as areas of the landfill reach final grade. Closure activities will be performed in a manner consistent with a final closure plan to be prepared for the site that requires the approval of RWQCB, the LEA, and CalRecycle. The final closure plan will include a description of the area to be closed, proposed final cover, environmental monitoring and control

systems (i.e., groundwater, surface water, leachate, and LFG), structures to be removed, site security, final grading, drainage and erosion control, and revegetation.

#### 2.3.2.2 Financial Assurance

California regulations require that landfill owners and operators provide financial assurance for closing the landfill at the point in time when closure will be the most expensive and for 30 years of post-closure maintenance. The financial assurance amount is based on the estimated cost of hiring a third party to perform closure and post-closure maintenance. The cost estimates are adjusted annually based on an inflation factor provided by CalRecycle. Additionally, the cost estimates are revised any time there is a change in the closure design or post-closure maintenance activities.

Several different financial assurance mechanisms are allowed by Title 27. Currently, CCL is utilizing a surety bond for its closure and post-closure maintenance financial assurance mechanism.

#### 2.3.2.3 Landfill Post-Closure Maintenance

In conjunction with the final closure plan, a final post-closure maintenance plan will be prepared. The final post-closure maintenance plan will be submitted to and approved by RWQCB, the LEA, and CalRecycle. The final post-closure maintenance plan will describe post-closure maintenance activities, including environmental monitoring (i.e., groundwater, surface water, leachate, and LFG), final cover inspection and maintenance procedures, drainage system inspection and maintenance procedures, vegetation inspection and maintenance procedures, final grading inspection and maintenance procedures, and proposed end use. The final post-closure maintenance plan also includes persons responsible for post-closure maintenance and a post-closure maintenance schedule.

#### 2.3.2.4 Landfill Post-Closure End Use

The post-closure end use will be consistent with the surrounding terrain, land uses, and zoning. At closure, it is currently proposed that the landfill be maintained as non-irrigated open space area, as follows.

As part of a future closure plan for the landfill, CCL will propose that a park or other type of publicly accessible recreational use on the site be approved in accordance with applicable laws and the covenants, conditions, and restrictions for the landfill. If requested by the County or applicable governmental agency, CCL will offer to dedicate such park or recreational area upon completion. CCL proposes to revegetate exposed slopes and landfill top areas with native plants and other appropriate screening landscape. The mechanism for guiding revegetation efforts will be the Preliminary Closure and Postclosure Maintenance Plan for Chiquita Canyon Landfill. Subsequent revisions of the Maintenance Plan will include guidelines for revegetation including:

1) Revegetation plan development and implementation will be conducted by an ecological restoration specialist familiar with restoration of native Southern California plant communities.
2) Revegetation will ideally be done with native plants.
3) Revegetation will not include plants on the County's list of invasive species.

CCL acknowledges that any such post-closure use is subject to approval by regulatory agencies, including RWQCB and CalRecycle. The final closure of the landfill, including revegetation and development of the park or other publicly accessible recreational use, is to be implemented in phases as large enough areas of the landfill reach final grade and landfilling operations on that part of the landfill end. This sequential closure is intended to reduce the potential for visibility of the landfill from offsite areas.

Chapter 15.0, Visual Resources, of the Original Draft EIR provides a number of visual simulations from key observation points. These simulations show proposed final cover landscaping that blends with the existing vegetation on surrounding hillsides.

The LFGTE plant, LFG flares, and leachate storage/treatment/load-out facilities will continue operation for some period of time after the landfill is closed. Additionally, the HHWF and composting facility could continue operation after landfill closure.

## 2.4 References

Hernandez, B., Captain. 2010. Los Angeles County Fire Department, Fire Station 76. Personal communication to Cindy Salazar, CH2M HILL. June 9.

CHAPTER 8

# Biological Resources

## 8.1 Introduction

This chapter evaluates the potential impacts to biological resources related to the Chiquita Canyon Landfill (CCL) Master Plan Revision (Proposed Project), which is located on the north side of State Route 126 (SR-126), west of Interstate 5 (I-5) in the Santa Clarita Valley area of Los Angeles County. A vicinity map showing the location of CCL is shown in Figure ES-1.

## 8.2 Methodology

### 8.2.1 Background Literature/Database Review

A review of relevant biological databases for biological resources at CCL was conducted. This included a review of the California Natural Diversity Database (CNDDB) and Special Animals List managed by the California Department of Fish and Wildlife (CDFW) (CDFW, 2011; CDFW, 2012a; CDFW, 2015); proposed or final critical habitat for species listed as "threatened" or "endangered" designated by the United States Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) under the Federal Endangered Species Act (FESA); Significant Ecological Areas (SEA) and Ecological Transition Areas (ETA) as determined by the County of Los Angeles; Significant Natural Areas (SNA) as determined by CDFW; Special Vascular Plants, Bryophytes, and Lichens List (CDFW, 2012b), the Calflora Database, hosted by the University of California Berkeley Digital Library Project (Calflora, 2012), and the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (CNPS, 2015).

Existing environmental documents, planning or technical reports, government publications, and other published materials with information relevant to biological resources in the region or the site were collected, reviewed, and summarized. A full list of documents that were reviewed for this chapter is provided in Section 8.10, References.

### 8.2.2 Agency Coordination

Contact was initiated with CDFW, Los Angeles Regional Water Quality Control Board (RWQCB), and the United States Army Corps of Engineers (USACE) via the Notice of Preparation that was distributed on November 21, 2011, and received by the State Clearing House on November 28, 2011 (see Appendix A of the Original Draft EIR). These same agencies were provided with the Notice of Availability of the Draft EIR, which was circulated for public review and comment from July 10, 2014 through October 23, 2014.

### 8.2.3 Reconnaissance Surveys

Reconnaissance-level biological surveys were conducted at CCL. Vegetation communities and habitat types at CCL were mapped on aerial photographs and verified with field visits. Vegetation communities were characterized according to the State Vegetation Classification system supported by CDFW and CNPS, and based on Sawyer and Keeler-Wolfe (1995). The principal unit of this system is called "Alliance" (or series), which is a floristically defined vegetation type identified by its dominant and/or characteristic species. Alliances were mapped at CCL and observed or anticipated wildlife usage of these vegetation communities was noted. Site visits were conducted by CH2M HILL biologists between 2002 and 2016. Additionally, vegetation monitoring of revegetation areas and updates to vegetation mapping at CCL were conducted by CH2M HILL biologists between 2004 and 2016. A comprehensive list of survey dates is provided in Appendix E1.

Additional information was mapped at CCL, including (1) general locations of potential waters of the United States as defined by USACE as containing waters in a 2-year flood frequency; (2) general locations of potential CDFW stream jurisdictional areas determined as having a defined "bed and bank"; (3) special-habitat features important for sensitive species; and (4) identification of potential wildlife movement or migratory corridors. Along with vegetation mapping, site habitat was assessed based on suitability to support special-status species.

### 8.2.4 Focused Surveys

Rare plant surveys of native, naturalized, and revegetated habitats at CCL were conducted in April and July, 2016. Surveys were floristic in nature, and followed standard survey protocol for rare plants outlined in Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS, 1996) and/or Protocols for Surveying and Evaluation Impacts to Special Status Native Plant Populations and Natural Communities (CDFW, 2009). Field surveys were conducted in a manner which maximized the likelihood of locating special-status plant species, as defined in this chapter; however, surveys were not limited to these species, but included any potential special-status plant species. Surveys were conducted in April and again in July representing times of the year when species were both evident and identifiable.

Further focused or protocol surveys for wildlife for species-specific detections were generally not conducted at CCL. Because of the slow implementation of landfill development at CCL, surveys would not be anticipated to represent current conditions at the time of land disturbance. Alternatively, suitable habitats within species' range are presumed to support the species presence for the purpose of impact assessment. Focused preconstruction surveys for wildlife will be conducted prior to ground-disturbing activities, as indicated in mitigation measures provided later in this chapter.

## 8.3 Regulatory Setting

### 8.3.1 Federal Regulations and Standards

The Proposed Project may be subject to the following federal regulations:

**Federal Endangered Species Act (FESA).** The FESA, including coordination requirements of Sections 7 and 10 and Habitat Conservation Plan (HCP) requirements of Section 9 (16 *United States Code* [USC] Sections 1531 et seq.; 50 *Code of Federal Regulations* (CFR) Part 402). Section 9 of the FESA prohibits the "take" of species federally listed as threatened or endangered. "Take" is further defined to include any harm or harassment, including significant habitat modification or degradation that could potentially kill or injure wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Take incidental to otherwise lawful activities can be authorized under Section 7 of the FESA, where a federal nexus or agency is involved. Section 10 of the FESA provides for project proponents of non-federal activities to apply for take incidental to otherwise lawful activities; this generally includes the development of an HCP.

**Migratory Bird Treaty Act (MBTA; 16 USC 703-712; 50 CFR 10).** The federal MBTA prohibits the "take" of migratory birds, unless permitted. This regulation can constrain construction activities that have the potential to affect nesting birds either through vegetation removal and land clearing, or through other construction- or operation-related disturbance.

**Clean Water Act (CWA). Sections 401 and 404 of the CWA (33 USC Section 1344).** Activities that have the potential to discharge fill materials into waters of the United States including wetlands are regulated by the United States Environmental Protection Agency (EPA) under Section 404 of the CWA. USACE administers Section 404 of the CWA. Fill activities may be permitted by a Nationwide or Individual Permit. The Nationwide Permit Program involves certain activities that have been preauthorized by

USACE. Individual Permit applications are more involved, and generally take up to 6 months for permit issuance. Typically, USACE requires mitigation for temporary and permanent impacts to waters and wetlands. Mitigation is required to be consistent with the revised regulations governing compensatory mitigation for authorized impacts to wetlands, streams, and other waters, per "Compensatory Mitigation for Losses of Aquatic Resources; Final Rule" (USACE, EPA *Federal Register*, April 10, 2008).

Projects requiring a Section 404 permit also require a CWA Section 401 Water Quality Certification, issued by the appropriate RWQCB.

Under the provisions of the CWA, USACE has jurisdictional authority over waters of the United States, which are defined in CFR as waters having current or historical use for interstate or foreign commerce; all interstate waters including interstate wetlands; all other intrastate waters such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds; tributaries to any of the aforementioned waters; territorial seas; and wetlands adjacent to waters (other than waters that are themselves wetlands) named above (33 CFR 328.3).

Traditionally, USACE has interpreted CWA regulations to define "waters of the United States" within non-tidal waters, in the absence of adjacent wetlands, as defined by the Ordinary High Water Mark (OHWM). In 33 CFR 328.3, the OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, or the presence of litter and debris." Generally, USACE has considered the OHWM to be the elevation to which water flows at a 2-year frequency (i.e., 50 years out of 100 years), and has asserted jurisdiction over tributaries to navigable waters demonstrating these characteristics, including ephemeral washes.

USACE has published *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE, 2008a; also see USACE, 2006). This field methodology has been developed by USACE for delineating OHWM in the arid west region of the United States. It presents methodology that recommends the consideration that OHWM indicators could be associated with 5-year events within the arid west, as opposed to 2-year events in other, more temperate climates. The methodology also puts a greater emphasis on changes in vegetation and sediment size in identifying jurisdictional limits.

Wetlands are defined in Section 404(b)(1) as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration [wetland hydrology] sufficient to support, and that under normal circumstances do support, a prevalence of vegetation [hydrophytic vegetation] typically adapted for life in saturated soil conditions [hydric soils]" (40 CFR 230.3; 33 CFR 328.3). The *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987), supported by the *Final Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2008b), requires an examination for the presence of indicators of three mandatory diagnostic characteristics. These characteristics or wetland parameters include hydrology, hydrophytic vegetation, and hydric soils. Except in limited instances, these documents require that evidence of a minimum of one positive indicator from each of the three mandatory wetland parameters be present for an area to be called a wetland under Section 404 jurisdiction.

USACE and EPA issued the Clean Water Rule: Definition of "Waters of the United States" Final Rule (Final Rule) in May, 2015 to clarify definition of waters of the United States in response to prior court cases that had challenged previous definitions used by USACE; specifically, Solid Waste Agency of Northern Cook County v. USACE, 531 U.S. 159 (2001) and Rapanos v. United States and Carabell v. United States 547 U.S., 126 S. Ct. 2208 (2006). The Final Rule provided the following definition to jurisdictional waters under the Clean Water Act:

The following waters are protected by the CWA under the Final Rule:

(1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters, including interstate wetlands;

(3) The territorial seas;

(4) All impoundments of waters otherwise identified as waters of the United States under this section;

(5) All tributaries of waters identified above;

(6) All waters adjacent to a water identified above, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters;

(7) All waters including prairie potholes, Carolina and Delmarva bays, pocosins, western vernal pools in California, and Texas coastal prairie wetlands where they are determined, on a case-specific basis, to have a significant nexus to a water identified above;

(8) All waters located within the 100-year floodplain of a water identified above and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified above of this section where they are determined on a case-specific basis to have a significant nexus to a water identified above.

The following are not “waters of the United States” even where they otherwise meet the definitions above:

(1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA.

(2) Prior converted cropland.

(3) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary; Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands; ditches that do not flow, either directly or through another water, into a water identified above;

(4) The following features: (i) Artificially irrigated areas that would revert to dry land should application of water to that area cease; (ii) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds; (iii) Artificial reflecting pools or swimming pools created in dry land; (iv) Small ornamental waters created in dry land; (v) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water; (vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and (vii) Puddles.

(5) Groundwater, including groundwater drained through subsurface drainage systems.

(6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(7) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

On October 9, 2015, a divided panel on the United States Court of Appeals for the Sixth Circuit issued a nationwide stay against the enforcement of the Final Rule. The Court acknowledged that 13 states had already stayed the Final Rule in their particular states. The majority concluded that there were good reasons to maintain the status quo pending the resolution of challenges to the rule.

With the stay, the definition of jurisdictional waters falls back to previous rulemaking, which was summarized in a guidance document issued in its final format on December 2, 2008 (USACE, 2008c). This document provided guidance on how EPA will assert jurisdiction over (1) Traditional Navigable Waters (TNW), (2) wetlands adjacent to TNWs, (3) non-navigable tributaries of TNWs that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (typically 3 months), and (4) wetlands that directly abut such tributaries.

Jurisdiction over the following waters will be based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: (1) non-navigable tributaries that are not relatively permanent, (2) wetlands adjacent to non-navigable tributaries that are not relatively permanent, and (3) wetlands that are adjacent to, but do not directly abut, a relatively permanent non-navigable tributary (USACE, 2008c).

USACE indicated that it will generally not assert jurisdiction over the following features: (1) swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow), and (2) ditches (including roadside ditches) excavated wholly in, draining only uplands, and not carrying a relatively permanent flow of water (USACE, 2008c).

In the absence of direct regulatory guidance from USACE on jurisdictional status at CCL, determining CWA jurisdiction at CCL can be conservatively based on the presence of OHWM, which is present on at least some of the channels at CCL. Since OHWM features are present, and since these channels flow and eventually connect to the Santa Clara River downstream (which would qualify as a TNW), these features are anticipated to be jurisdictional under the definition of “tributaries” under the CWA.

### 8.3.2 State Regulations and Standards

The Proposed Project may be subject to the following state regulations:

**California Endangered Species Act (CESA; California Fish and Wildlife Code Sections 2050 et seq.).** Section 2050 of the California Fish and Wildlife Code prohibits any activities that would jeopardize or take a species listed as threatened or endangered within the state. Projects that have the potential to impact species listed as threatened or endangered by the state might require an Incidental Take Permit from CDFW under Section 2081 of the California Fish and Wildlife Code.

**California Fully Protected Wildlife Species Provisions (California Fish and Wildlife Code Sections 3511, 4700, 5050, and 5515).** These provisions prohibit the taking of fully protected birds, mammals, amphibians, and fish. CDFW might authorize the project, with conditions, after reviewing the project impacts.

**Birds of Prey Protection Provision (California Fish and Wildlife Code Section 3503.5).** This provision prohibits the taking of birds of prey, including any birds of the order Falconiformes or Strigiformes, and includes the nests or eggs of such birds.

**Migratory Bird Provision (California Fish and Wildlife Code Section 3513).** This provision prohibits any take or possession of birds that are designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA.

**Fish and Wildlife Protection and Conservation – Streambed Alteration Agreements (California Fish and Wildlife Code Section 1600).** Section 1600 of the California Fish and Wildlife Code regulates the alteration of the bed, bank, or channel of a stream, river, or lake, including dry washes subject to intermittent flow. Generally, CDFW asserts jurisdiction up to the top of significant bank cuts, or to the outside of any riparian vegetation associated with a water course. Activities that have the potential to affect jurisdictional areas can be authorized through issuance of a Streambed Alteration Agreement (SAA). The SAA specifies conditions and mitigation measures that would minimize impacts to riparian resources from proposed actions.

## 8.3.3 Local Regulations and Standards

The Proposed Project may be subject to the following ordinance:

**County of Los Angeles Oak Tree Ordinance (Los Angeles County Code, Title 22, Section 56, Part 16).** The oak tree permit has been established by the County of Los Angeles to recognize oak trees as significant historical, aesthetic, and ecological resources and to create favorable conditions for the preservation and propagation of this unique, threatened plant heritage, particularly those trees which may be classified as heritage oak trees, for the benefit of current and future residents within the county (Los Angeles County Code, 2015). According to this ordinance:

> "Section 22.56.2070, a person shall not cut, destroy, remove, relocate, inflict damage or encroach into a protected zone of any tree of the oak genus which is (a) 25 inches or more in circumference (eight inches in diameter) as measured four and one-half feet above mean natural grade; in the case of an oak with more than one trunk, whose combined circumference of any two trunks is at least 38 inches (12 inches in diameter) as measured four and one-half feet above mean natural grade, on any lot or parcel of land within the unincorporated area of Los Angeles County, or (b) any tree that has been provided as a replacement tree, pursuant to Section 22.56.2180, on any lot or parcel of land within the unincorporated area of Los Angeles County, unless an oak tree permit is first obtained as provided by this Part 16."

A heritage oak tree is defined as any oak tree at least 36 inches in diameter measured four and one-half feet above the natural grade. In addition, any oak tree that is culturally or historically significant to the community, even if it is less than 36 inches in diameter, is classified as a heritage oak tree (Los Angeles County Code, 2015).

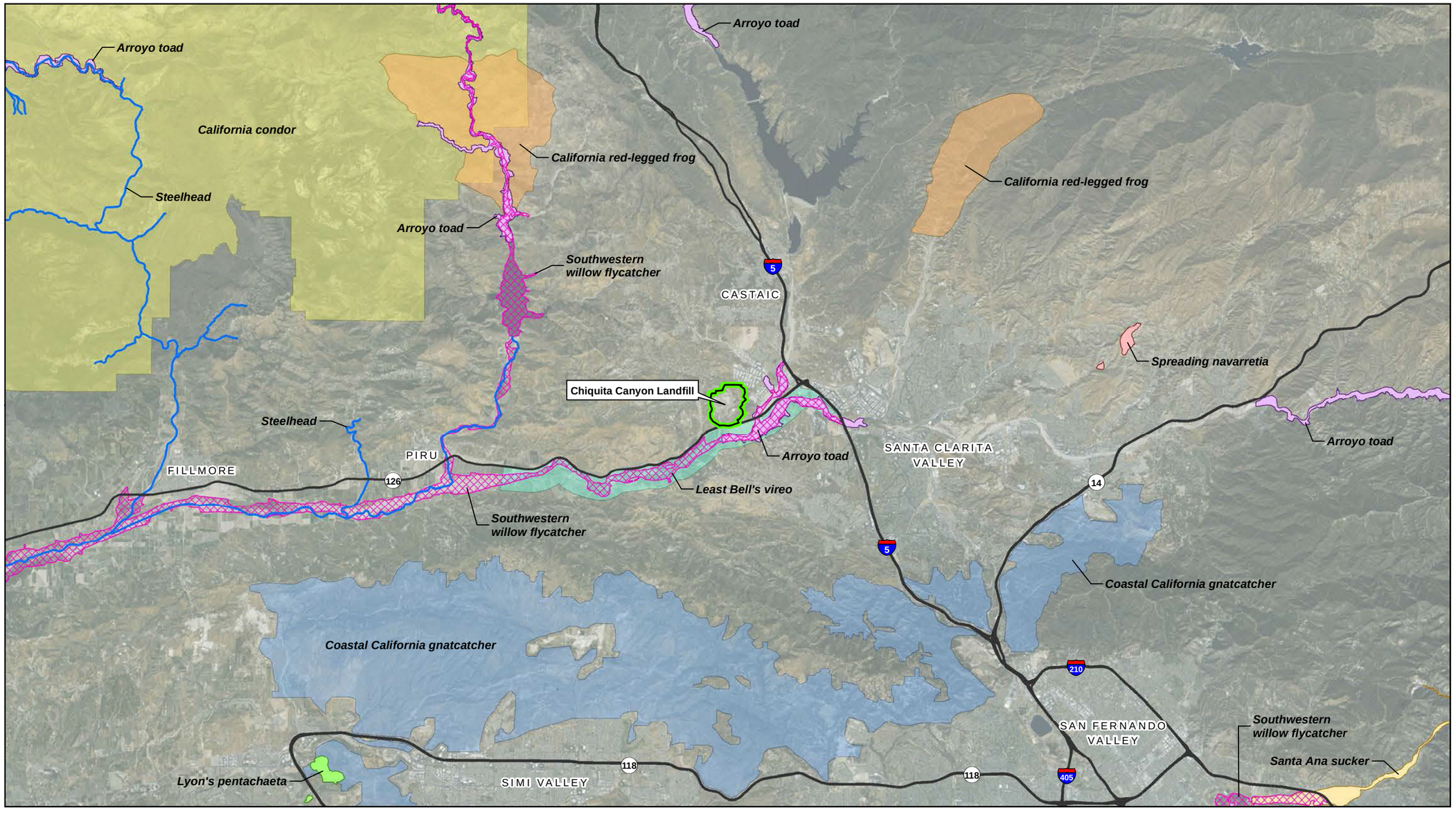
## 8.3.4 Special Land Designations

### 8.3.4.1 Federal Critical Habitat

Section 3(5)(A) of the FESA requires USFWS or NMFS to establish critical habitat for federally listed species. Critical habitat represents areas within the geographical area occupied by the species "on which are found those physical or biological features (i) essential to the conservation of the species and (ii) which may require special management consideration or protection; and (iii) specific areas outside the geographical area occupied by the species at the time it is listed …upon a determination …that such areas are essential for the conservation of the species." Federal projects (or projects with a significant federal nexus) must be evaluated for significant effects on designated critical habitat. Generally private projects or landholdings are exempt from the requirements of critical habitat.

CCL is not located within any critical habitat boundary. The species for which critical habitat has been designated in the general project area, along the Santa Clara River, include (Figure 8-1):

- Arroyo toad (*Anaxyrus californicus*): Along the upper reach of the Santa Clara River adjacent to CCL (USFWS, 2011a)
- Least Bell's vireo (*Vireo pusillus pusillus*): Along the upper reach of the Santa Clara River adjacent to CCL (USFWS, 1994)
- Southern California steelhead (*Oncorhynchus mykiss irideus*): Along the lower reaches of the Santa Clara River upstream as far as Piru Creek, including Piru Creek (National Oceanic and Atmospheric Administration, 2005)




**LEGEND**

- Major Road
- Limit of Disturbance
- Project Boundary
- Steelhead
- Arroyo toad
- California condor
- California red-legged frog
- Coastal California gnatcatcher
- Least Bell's vireo
- Lyon's pentachaeta
- Santa Ana sucker
- Southwestern willow flycatcher
- Spreading navarretia

**Sources:** ESRI (2010); Final Critical Habitat boundaries obtained from U.S. Fish and Wildlife Service for the following species: Arroyo toad (2011), California condor (1977), California red-legged frog (2010), Coastal California gnatcatcher (2007), Least Bell's vireo (1994), Lyon's pentachaeta (2006), Santa Ana sucker (2010), Spreading navarretia (2010), and Steelhead (2005).
**Aerial Imagery Sources:** Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community (2010)

N

0 1.375 2.75

Miles

**Figure 8-1.**
**Critical Habitat**
*Chiquita Canyon Landfill Master Plan Revision*

Unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) critical habitat was draft designated in 1980 by USFWS in the area; however, the draft designation was never finalized (USFWS, 1980). Other critical habitat designations for wildlife species within the region (Figure 8-1) include California condor (*Gymnogyps californianus*), California red-legged frog (*Rana draytonii*), coastal California gnatcatcher (*Polioptila californica californicus*), and Santa Ana sucker (*Catostomus santaanae*) as well as plant species including Lyon's pentachaeta (*Pentachaeta lyonii*) and spreading navarretia (*Navarretia fossalis*). However, these critical habitat designations are not in the immediate vicinity of CCL.

#### 8.3.4.2 Significant Ecological Areas

In 1970, Los Angeles County prepared an Environmental Development Guide, which contains an Open Space Conceptual Plan map. The Open Space Conceptual Plan depicts areas of conservation and safety significance, and these areas closely resemble the proposed SEA and ETA map (Los Angeles County Department of Regional Planning [LADRP], 2009); ETAs are a subset of SEAs. SEAs were established in 1976 by Los Angeles County to designate areas with sensitive environmental conditions and/or resources (LADRP, 2009). In 2002, the proposed SEA map was released for public review as part of an Amendment to the County's General Plan (LADRP, 2009). The SEAs in the vicinity of CCL were adopted with the Santa Clarita Valley Plan in Oct 2012. Uses normally allowed in the corresponding land use classification would continue to be permitted unless a finding is made that the Proposed Project would have an adverse effect on the SEA (LADRP, 1990). Boundaries for the SEAs are general in nature and broadly outline the biotic resources of concern. The Santa Clara River SEA is closest to CCL; however, CCL is not located within the Santa Clara River SEA boundaries (Figure 8-2). Therefore, no review by the Significant Ecological Areas Technical Advisory Committee (SEATAC) is required.

#### 8.3.4.3 Santa Clara River Enhancement and Management Plan

The Santa Clara River Enhancement and Management Plan (SCREMP) was developed by the Ventura County Watershed Protection District (VCWPD) and the Los Angeles County Department of Public Works (LACDPW). It identifies a number of riverwide and reach-specific recommendations within the 500-year floodplain. Reach 11 of the Santa Clara River, which includes Newhall Land and Farming Company (NLF) project areas is south of the CCL site and across SR-126 (see Figure 2.1-1 in the SCREMP; VCWPD and LACDPW, 2005). Reach 11 recommendations identify that the activities within this reach shall comply with the CWA Section 404 permit and Section 1603 SAA pursuant to the Natural River Management Plan (NRMP) developed for NLF projects. This NRMP addresses cumulative impacts to Santa Clara River and San Francisquito Creek drainage for the next 20 years and identifies standard mitigation measures for all work that could occur within these drainages.

## 8.4 Regional Setting

CCL is located in the Santa Clarita Valley, which is generally flat with gently rolling to steep hills that have an average elevation of 1,200 feet to 1,400 feet above mean sea level (msl). CCL is located in the Transverse Ranges, within the western section of the San Gabriel Mountains that forms the northern border of the Santa Clara River Valley (referred to locally as the Santa Clarita River Valley) in the Proposed Project area. South across the Santa Clara River are the Santa Susana Mountains. To the east are the communities of Valencia and Santa Clarita located in the Santa Clarita River Valley. To the west in Ventura County are the Piru Mountains of the Coast Ranges and the Los Padres National Forest. To the north beyond private holdings in the mountains is the Angeles National Forest.

Topographically, the Proposed Project site is characterized by steep-sided slopes (approaching 1:1 horizontal:vertical) along two principal canyons. Chiquita Canyon, the main canyon, is generally oriented northeast-southwest, and the eastern canyon, where expansion is proposed, is oriented northwest-southeast. Both canyons open into the Santa Clara River Valley. SR-126 is immediately south of current and proposed new entry to CCL.

The Santa Clarita Valley floor is crossed by several watercourses, the largest being the Santa Clara River, located roughly 0.3 mile south of the entrance of CCL. The watercourses in this area are usually dry, maintaining surface flow only during the rainy months. However, the Santa Clara River maintains surface flows year-round. Castaic Creek is a major tributary of the Santa Clara River; the confluence of these two drainage courses is located approximately 0.6 mile to the southeast of CCL. Castaic Creek generally only flows seasonally or in response to large storm events. Within CCL, the major drainages carry surface water towards the Santa Clara River (from the western portion of the landfill) or Castaic Creek (from the eastern portion of the landfill) across the lands of NLF. In the immediate vicinity of CCL, some surface drainage flows to catch basins, where it is channelized into underground culverts. These culverts discharge water into surface drainages that subsequently discharge to the Santa Clara River or Castaic Creek.

Land use patterns in the region reflect a mixture of open space, urban, and rural uses, including commercial and industrial land, agricultural fields, and vacant areas consisting of undeveloped commercial/industrial lots, undeveloped hillsides, or floodplains. Within the immediate vicinity of CCL there are undeveloped hillsides, agricultural land, and commercial/industrial lots. A mail distribution facility, operated by the United States Postal Service, is located adjacent to the eastern edge of the landfill property boundary.

# 8.5 Project Setting

## 8.5.1 Land Cover Types and Vegetation Alliances

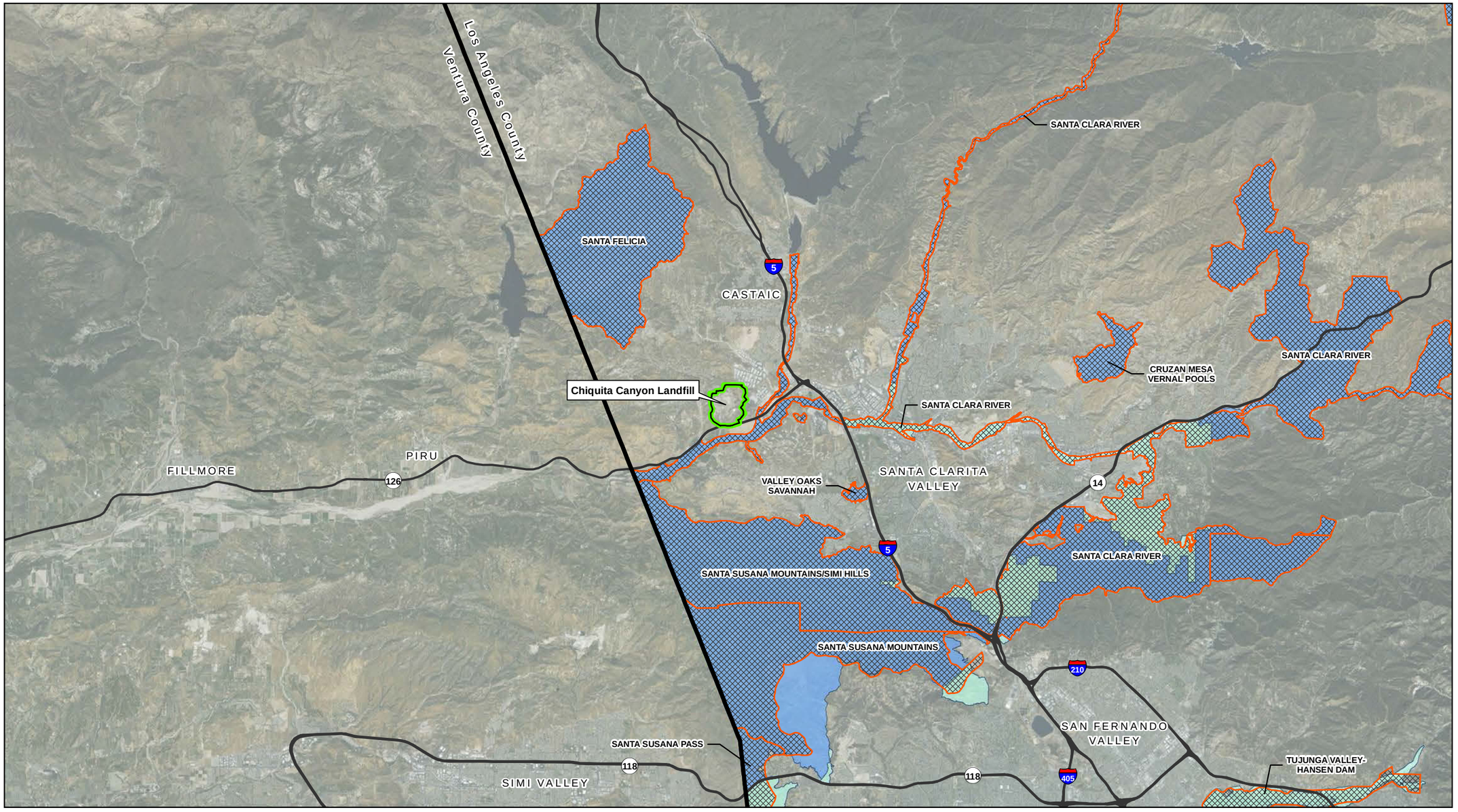
CCL consists of developed, natural, non-native, and revegetated land cover types and vegetation alliances. Land cover types and vegetation alliances at CCL are shown in Figure 8-3.

Developed land includes Active Landfill, Roads, and Infrastructure; and Ornamental land covers. Some species, including American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), various gulls (*Larus* spp.), and some passerines such as brown-headed cowbird (*Molothrus ater*), Brewer's blackbird (*Euphagus cyanocephalus*), and common starling (*Sturnus vulgaris*), may scavenge in the active landfill, although various control methods used by CCL limit scavenging. The majority of CCL is comprised of developed land.

Natural alliances and land covers at CCL consist of thirteen vegetation alliances and one unvegetated land cover. The alliances include one herbaceous alliance, eleven shrubland alliances, and one forest alliance (CNPS, 2015). The natural unvegetated land cover is bare rock. Non-native alliances at CCL consist of three vegetation alliances. These alliances include one shrubland alliance and two herbaceous alliances. Revegetated alliances at CCL consist of four shrubland alliances.

The herbaceous alliances consist of *Avena* (*barbata, fatua*) Herbaceous Semi-Natural Alliance; *Brassica nigra* and Other Mustards Herbaceous Semi-Natural Alliance; and *Selaginella bigelovii* Herbaceous Alliance. Common wildlife species associated with herbaceous alliances at CCL may include seed-eating birds such as lesser goldfinch (*Carduelis psalria*) or mourning dove (*Zenaida macroura*).

The shrubland alliances include *Adenostoma fasciculatum-Salvia mellifera* Shrubland Alliance; *Artemisia californica* Shrubland Alliance; *Artemisia californica-Eriogonum fasciculatum* Shrubland Alliance; *Artemisia californica-Salvia mellifera* Shrubland Alliance; *Atriplex canescens* Shrubland Alliance; *Baccharis salicifolia* Shrubland Alliance; *Encelia californica* Shrubland Alliance; *Encelia farinosa* Shrubland Alliance; *Eriogonum fasciculatum* Shrubland Alliance; *Quercus berberidifolia* Shrubland Alliance; *Salvia leucophylla* Shrubland Alliance; *Salvia mellifera* Shrubland Alliance; and *Tamarix* spp. Shrubland Semi-Natural Alliance.




***LEGEND***

- Major Road
- Limit of Disturbance
- Project Boundary
- Existing/Adopted Significant Ecological Area
- Proposed Significant Ecological Area
- Proposed Significant Ecological Area (Incorporated City)

N

0 1.375 2.75

Miles

**Sources:** Los Angeles County Department of Regional Planning (SEA data accessed 11/5/2015), ESRI

**Figure 8-2.**
**Existing and Proposed Significant Ecological Areas of Los Angeles County**
*Chiquita Canyon Landfill*
*Master Plan Revision*

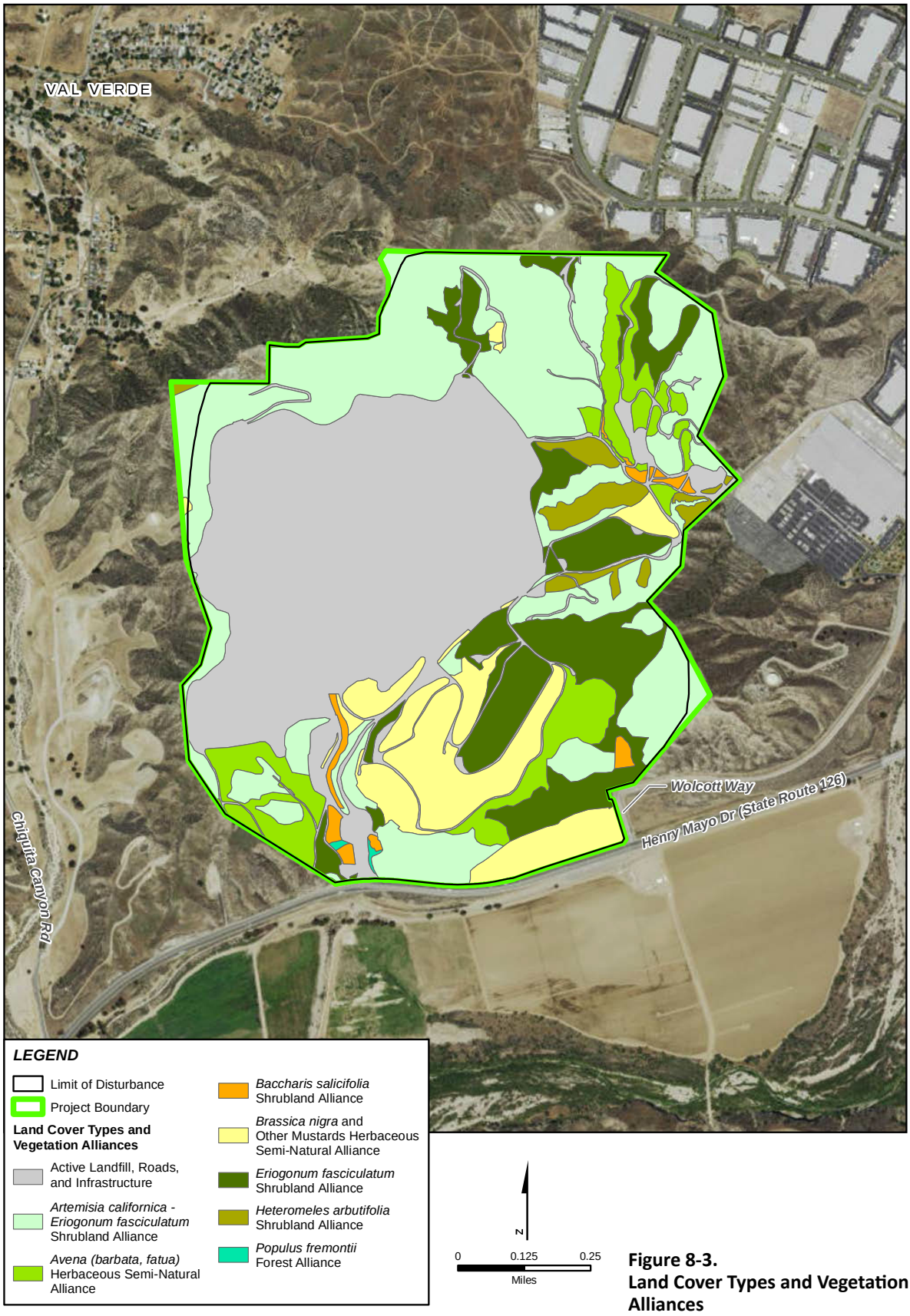



**Figure 8-3.**
**Land Cover Types and Vegetation Alliances**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Common wildlife species associated with shrubland alliances at CCL include American bushtit (*Psaltriparus minimus*), Anna's hummingbird (*Calypte anna*), Costa's hummingbird (*Calypte costae*), California quail (*Callipepla californica*), Bewick's wren (*Thryomanes bewickii*), California towhee (*Pipilo crissalis*), lesser goldfinch (*Carduelis psalria*), phainopepla (*Phainopepla nitens*), wrentit (*Chamaea fasciata*), western scrub jay (*Aphelocoma californica*), California thrasher (*Toxostoma redivivum*), spotted towhee (*Pipilo maculatus*), red-tailed hawk (*Buteo jamaicensis*), western kingbird (*Tyrannus verticalis*), desert cottontail (*Sylvilagus audubonii*), dusky-footed woodrat (*Neotoma fuscipes*), deer mouse (*Peromyscus maniculatus*), coyote (*Canis latrans*), western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), coachwhip (*Masticophis flagellum*), gopher snake (*Pituophis catenifer*), and Pacific northern rattlesnake (*Crotalus oreganus*). Several bobcats (*Lynx rufus*) were also observed within the CCL shrublands.

The forest alliance is the *Populus fremontii* Forest Alliance. Common wildlife species associated with this community at CCL include Costa's hummingbird, Anna's hummingbird, northern oriole (*Icterus galbula*), and lesser goldfinch.

Table 8-1 identifies the land cover types and vegetation alliances discussed below and their corresponding acreage within the property boundary that may be disturbed as a result of the Proposed Project.

Table 8-1. Vegetation Alliances, Land Cover Types, and Corresponding Acreage Within the Limit of Disturbance
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Vegetation Alliance/ Land Cover Types | Acreage Within Limit of Disturbance | Additional Acreage Within Property Boundary and Outside Limit of Disturbance | Total Acreage at CCL |
|---|---|---|---|
| **Developed Land Covers** | | | |
| *Active Landfill, Roads, and Infrastructure* | 239.04 | 0.38 | 239.42 |
| *Ornamental* | 1.50 | 0.04 | 1.54 |
| **Natural Alliances and Land Cover** | | | |
| **Herbaceous Alliances** | | | |
| *Selaginella bigelovii Herbaceous Alliance* | 0.45 | 0.00 | 0.45 |
| **Shrubland Alliances** | | | |
| *Adenostoma fasciculatum-Salvia mellifera Shrubland Alliance* | 2.91 | 0.03 | 2.94 |
| *Artemisia californica Shrubland Alliance* | 1.73 | 0.00 | 1.73 |
| *Artemisia californica-Eriogonum fasciculatum Shrubland Alliance* | 7.76 | 0.01 | 7.77 |
| *Artemisia californica-Salvia mellifera Shrubland Alliance* | 14.47 | 0.59 | 15.06 |
| *Atriplex canescens Shrubland Alliance* | 5.22 | 0.00 | 5.22 |
| *Baccharis salicifolia Shrubland Alliance* | 3.28 | 0.00 | 3.28 |
| *Encelia californica Shrubland Alliance* | 17.74 | 0.53 | 18.27 |
| *Eriogonum fasciculatum Shrubland Alliance* | 57.48 | 4.73 | 62.21 |
| *Quercus berberidifolia Shrubland Alliance* | 2.59 | 0.01 | 2.60 |

Table 8-1. Vegetation Alliances, Land Cover Types, and Corresponding Acreage Within the Limit of Disturbance
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Vegetation Alliance/ Land Cover Types | Acreage Within Limit of Disturbance | Additional Acreage Within Property Boundary and Outside Limit of Disturbance | Total Acreage at CCL |
|---|---|---|---|
| *Salvia leucophylla Shrubland Alliance* | 12.92 | 2.78 | 15.70 |
| *Salvia mellifera Shrubland Alliance* | 43.65 | 2.10 | 45.75 |
| **Land Cover** | | | |
| *Bare Rock* | 5.02 | 0.93 | 5.95 |
| **Forest Alliance** | | | |
| *Populus fremontii Forest Alliance* | 1.56 | 0.01 | 1.57 |
| **Semi-Natural (Non-Native) Alliances** | | | |
| **Herbaceous Alliances** | | | |
| *Avena (barbata, fatua) Herbaceous Semi-Natural Alliance* | 76.65 | 0.45 | 77.10 |
| *Brassica nigra and Other Mustards Herbaceous Semi-Natural Alliance* | 61.83 | 0.85 | 62.68 |
| **Shrubland Alliances** | | | |
| *Tamarix* spp. *Shrubland Semi-Natural Alliance* | 0.37 | 0.00 | 0.37 |
| **Revegetated Alliances** | | | |
| **Shrubland Alliances** | | | |
| *Artemisia californica-Eriogonum fasciculatum Shrubland Alliance* | 12.59 | 0.08 | 12.67 |
| *Encelia californica Shrubland Alliance* | 19.14 | 0.00 | 19.14 |
| *Encelia farinosa Shrubland Alliance* | 7.97 | 0.11 | 8.08 |
| *Eriogonum fasciculatum Shrubland Alliance* | 29.21 | 0.67 | 29.88 |
| **TOTAL** | **625.08** | **14.30** | **639.38** |

#### 8.5.1.1 Developed Land Cover

**Active Landfill, Roads, and Infrastructure**

Active landfill, roads, and infrastructure occur throughout the Proposed Project area, and are modified to accommodate landfill operations. This land cover type is typically not vegetated, but some vegetation may be present, including various landscaping plants and non-native weedy species that can be observed along roadsides.

Some species, including American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), various gulls (*Larus* spp.), and some passerines such as brown-headed cowbird (*Molothrus ater*), Brewer's blackbird (*Euphagus cyanocephalus*), and common starling (*Sturnus vulgaris*), may scavenge in the active landfill, although various control methods used by CCL prevent limit scavenging.

**Ornamental**

Ornamental trees and shrubs vegetate a small portion of the landfill, most notably at the current entrance at the south west edge of the Proposed Project area. These areas are dominated by non-native trees and shrubs that have been planted, often in rows. Plantings include various eucalyptus trees (*Eucalyptus* spp.) and Peruvian pepper trees (*Schinus molle*). This vegetation may provide nesting cover for bird species present at the landfill.

#### 8.5.1.2 Natural Alliances and Land Cover

**Bushy Spikemoss Mats: *Selaginella bigelovii* Herbaceous Alliance**

Bushy Spikemoss (*Selaginella bigelovii*) is a vascular spikemoss, which is able to dry up almost completely and go dormant during the summer. When moisture and cooler temperatures return this species rapidly springs back to life. This alliance is characterized by intermediate to dense mats of bushy spikemoss on rocky outcrops and cliffs. The alliance was identified on one steep, southeastern facing slope at CCL, where spikemoss coverage exceeded other vascular plant cover.

**Chamise-Black Sage Chaparral: *Adenostoma fasciculatum-Salvia mellifera* Shrubland Alliance**

Chamise (*Adenostoma fasciculatum*) is a long-lived, shade-intolerant shrub that grows up to 12 feet high. Black sage (*Salvia mellifera*) is a drought tolerant and shallow-rooted shrub that grows approximately 6 feet high. Chamise and black sage are co-dominates with between thirty and sixty percent relative cover in the shrub canopy. This alliance typically occurs on lower to upper slopes of all aspects, but especially south facing ones. Soils are shallow with loamy sand or sandy loam texture. At CCL this alliance typically occurs on north and east facing, steep (greater than 15%) slopes with purple sage and a variable herbaceous layer of non-native grasses.

**California Sagebrush Scrub: *Artemisia californica* Shrubland Alliance**

California sagebrush (*Artemisia californica*) is a drought tolerant shrub with shallow roots. It grows up to 6 feet high and has drought deciduous leaves. This alliance is dominated or co-dominated by California sagebrush and typically occurs on slopes that are steep and rarely flooded. It has been noted at high abundance on protected, north-facing hillsides. At CCL this alliance typically occurs on east facing, steep (greater than 15%) slopes with purple sage, California buckwheat, and a variable herbaceous layer of non-native grasses.

**California Sagebrush-California Buckwheat Scrub: *Artemisia californica-Eriogonum fasciculatum* Shrubland Alliance**

California sagebrush (*Artemisia californica*) is a drought tolerant shrub with shallow roots. It grows up to 6 feet high and has drought deciduous leaves. California buckwheat (*Eriogonum fasciculatum*) is a semi-woody shrub with roots that penetrate to 4 feet and also has drought deciduous leaves. In this alliance, both California sagebrush and California buckwheat have 30% to 60% relative cover in the shrub canopy. This alliance typically occurs on steep south facing slopes.

This alliance is present throughout CCL on slopes with intermediate dryness, including in areas that have been re-vegetated. At CCL this alliance typically occurs with black sage (*Salvia mellifera*) and purple sage (*Salvia leucophylla*) and a variable herbaceous layer of non-native grasses.

**California Sagebrush-Black Sage Scrub: *Artemisia californica-Salvia mellifera* Shrubland Alliance**

California sagebrush (*Artemisia californica*) and black sage (*Salvia mellifera*) are both drought tolerant and shallow-rooted shrubs that grow approximately 6 feet high. This alliance is generally found on moderate to steep, low-elevation slopes that have been burned within the last 4 decades. California sagebrush and black sage are co-dominates in the shrub canopy with approximately thirty to sixty percent relative cover. At CCL purple sage and coyote bush are also present at low cover.

**Fourwing Saltbush Scrub: *Atriplex canescens* Shrubland Alliance**

Fourwing saltbush (*Atriplex canescens*) is a long-lived shrub resistant to salt, cold and drought. Habitats include playas, old beach and shores, lake deposits, dissected alluvial fans, and rolling hills. This species tolerates saline, alkaline, boron and gypsum soils, but is not an indicator of these conditions. The *Atriplex canescens* Shrubland Alliance has an open or intermittent shrub canopy with fourwing saltbush as the dominant or co-dominate species with greater than 2 percent absolute cover and greater than 50 percent relative cover in the shrub canopy. At CCL this alliance is dominated by fourwing saltbush with shrubs including California sagebrush and California buckwheat and a variable herbaceous layer with non-native grasses.

**Mulefat Thickets: *Baccharis salicifolia* Shrubland Alliance**

Mulefat (*Baccharis salicifolia*) is an evergreen shrub, which grows in mixed alluvium soils, primarily along seasonal stream courses or ephemeral (flow only in response to rain events) waterways. At CCL this alliance is found in ephemeral drainages. They generally flow in a south-southeast direction, fed by numerous small tributaries upstream, but discharging into wider channels in valley bottoms. The natural flow of the major drainages has been permanently interrupted at the perimeter of CCL by concrete weirs and associated catch basins constructed to provide retention for sediment capture and settling of surface flows.

**California Brittle Bush Scrub: *Encelia californica* Shrubland Alliance**

California brittle bush (*Encelia californica*) is a relatively short-lived shrub that produces yellow flowers when moisture is available, typically in the spring and sometimes lasting through the fall. This alliance is dominated or co-dominated by California brittle bush, with at least thirty percent of the relative cover in the shrub canopy. At CCL this alliance often contains black sage, California buckwheat, and Russian thistle.

**California Buckwheat Scrub: *Eriogonum fasciculatum* Shrubland Alliance**

California buckwheat (*Eriogonum fasciculatum*) is a semi-woody shrub with roots that penetrate to 5 feet and also has drought deciduous leaves. This alliance is present throughout CCL on slopes with intermediate dryness and which were potentially subjected to historical disturbance, such as cattle grazing. It is also present in revegetated areas. Typical species composition for this community on CCL includes California brittle bush, mule fat (*Baccharis salicifolia*), black sage (*Salvia mellifera*), and our Lord's candle (*Yucca whipplei*).

**Scrub Oak Chaparral: *Quercus berberidifolia* Shrubland Alliance**

Scrub oak (*Quercus berberidifolia*) is a slow-growing, evergreen shrub that grows to approximately 20 feet high. This alliance is dominated by stands of scrub oak that typically occur on mesic, north-facing slopes. Scrub oaks are greater than sixty percent of the relative cover in the alliance, often creating a continuous canopy and sparse herbaceous layer. At CCL this alliance occurs on north and east facing slopes and contains other shrubs including toyon (*Heteromeles arbutifolia*), California sagebrush, black sage, and chamise.

**Purple Sage Scrub: *Salvia leucophylla* Shrubland Alliance**

Purple sage (*Salvia leucophylla*) is a drought tolerant shrub with shallow roots. This alliance can occur on slopes of varying aspects, but typically occurs on steep slopes. The soils are usually fine sandy clay loam to clay, which may be relatively deep. At CCL this alliance is dominated by purple sage, and also contains other shrubs including California sagebrush, black sage, California buckwheat, and chamise.

**Black Sage Scrub: *Salvia mellifera* Shrubland Alliance**

Black sage (*Salvia mellifera*) is a drought tolerant and shallow-rooted shrub that grows approximately 6 feet high. Black sage scrub typically occurs on dry slopes and alluvial fans with shallow soils. The alliance

consists of over sixty percent relative cover of black sage in the shrub canopy. At CCL this alliance is dominated by black sage, and also contains other shrubs including California sagebrush, purple sage, California buckwheat, California brittle bush, and chamise.

**Fremont Cottonwood Forest: Populus fremontii Forest Alliance**

Fremont cottonwood (*Populus fremontii*) is a native tree found in areas with a dependable subsurface water supply that can vary considerably during the year. A surface water source, seasonal, intermittent, or perennial, is required for this alliance type. At CCL this alliance is present adjacent to the southern detention basin, where some *Tamarix ramosissima* is also present; and, in the eastern detention basin.

#### 8.5.1.3 Non-Native Alliances

***Avena* (*barbata, fatua*) Herbaceous Semi-Natural Alliance**

The Avena (*barbata, fatua*) Herbaceous Semi-Natural Alliance is comprised primarily of non-native grasses. This alliance is present throughout CCL, on intermediate slopes in areas which were subjected to historical disturbance, such as prior landfill activities, site revegetation, or grazing. This community at CCL contains dominant species of slender wild oat (*Avena barbata*), barley (*Hordeum* spp.), foxtail chess (*Bromus madritensis* ssp*. rubens*), soft chess (*Bromus hordeaceus*), tocalote (*Centaurea melitensis*), and tree tobacco (*Nicotiana glauca*). This alliance may also be referred to in this document as non-native grassland.

***Brassica nigra* and Other Mustards Herbaceous Semi-Natural Alliance**

This alliance typically develops on previously disturbed areas that may have been cleared of natural vegetation (e.g., graded) where non-native herbs have established. At CCL, this alliance is typically dominated by non-native species including various mustards (*Brassica* ssp. and *Hirschfeldia* sp.), wild radish (*Raphanus sativus*), brome grass (*Bromus* ssp.), and Russian thistle (*Salsola tragus*), sometimes with trees (such as Peruvian peppertree [*Schinus molle*]) and shrubs (such as California buckwheat [*Eriogonum fasciculatum*], California encelia [*Encelia californica*], and brittlebush [*Encelia farinosa*]) present at low cover. This type may also be referred to in this document as ruderal.

**Tamarisk Thickets: *Tamarix* spp. Shrubland Semi-Natural Alliance**

Tamarisk (*Tamarix ramosissima*) are non-native, long-lived shrubs with extensive and deep root systems, typically associated with waterways or drainage basins. They are highly tolerant of alkaline and saline habitats and can concentrate salts in their leaves. Tamarisk are invasive and can invade native stands of willows or cottonwoods. At CCL this alliance occurs in one location at the south eastern edge of the site associated with a drainage basin.

**Bare Rock**

Bare rock is a natural unvegetated land cover found mainly on steep slopes on the south eastern portion of the site.

#### 8.5.1.4 Revegetated Alliances

**California Sagebrush-California Buckwheat Scrub: *Artemisia californica-Eriogonum fasciculatum* Shrubland Alliance**

See description under Natural Alliances and Land Cover.

**California Sagebrush Scrub: *Artemisia californica* Shrubland Alliance**

See description under Natural Alliances and Land Cover.

**Brittle Bush Scrub: *Encelia farinosa* Shrubland Alliance**

Brittle bush (*Encelia farinosa*) short-lived subshrub that lives up to 30 years and leafs out and flowers when moisture is available. Within the range of the species, it is common on steep, rocky sites, especially south-facing slopes. At CCL this alliance does not naturally occur, but was planted on scattered revegetated areas, and has successfully established.

**California Buckwheat Scrub: *Eriogonum fasciculatum* Shrubland Alliance**

See description under Natural Alliances and Land Cover.

## 8.5.2 Special Habitat Features

Special habitat features can provide substantial benefit to wildlife populations and are an important component of wildlife habitat, often determining the presence of some species. Special habitat features that were identified at CCL include rocky outcrops, cliffs, crevices and small caverns, sandstone banks/bluffs, and utility towers. Rocky outcrops provide important habitat for species such as the coastal whiptail (*Aspidoscelis tigris stejnegeri*) and San Diego desert woodrat (*Neotoma lepida intermedia*). Higher rocky outcrops and low cliffs are present on the site and may provide nesting sites for raptorial species of birds, including red-tailed hawk, prairie falcon (*Falco mexicanus*), raven (*Corvus corax*), and others. Prairie falcons were observed within the southern portions of the site, utilizing the cliff and grassland habitats. Utility towers may also provide nesting sites and perching locations. The majority of utility towers are located near the landfill entrance; red-tailed hawks were observed perching in these locations, and raven nests have been observed in these utility towers.

Outcrops at CCL also contain crevices and small cavernous openings that may provide suitable roosting habitat for many species of bats. These features are found throughout the higher elevations of the site on hill slopes and ridges and also along SR-126 where the new site entrance would be located. Larger cliff systems with many cavernous openings are found in the northern/eastern portions of the landfill; exit surveys conducted at one cliff location indicated that bat roosts are likely present.

## 8.5.3 Potential Jurisdictional Waters

No wetland evidence supporting positive wetland indicators for soils, hydrology, or vegetation exists at CCL as determined by guidelines provided by USACE (USACE, 1987; USACE, 2008b). Riparian vegetation and distinct bed shelving were observed along the major dry wash drainages, indicating intermittent or ephemeral channel flow. Based on this, there is a potential for waters of the United States jurisdictional drainages. Potential CDFW jurisdictional areas may also be present at CCL based on streambed and bank. Drainages within the CCL site typically flow into leveed detention basins for settling prior to discharge. This provides a level of isolation and sedimentation control for ordinary flows from downstream TNWs.

Riparian habitat including mule fat, cottonwood, and Mexican elderberry along major drainages at CCL would typically represent the extent of CDFW jurisdiction; while the OHWM along the major drainages would typically represent the extent of USACE jurisdiction. USACE would make any final determination on federal jurisdiction. CDFW would make the final determination on jurisdictional stream bed and bank, and determine the need for an SAA for impacts, if needed.

Drainages at CCL and the immediate vicinity are shown in Figure 8-4. Added drainage indicator features on Figure 8-4 are colored only to identify the potential drainage areas and are not to scale and do not reflect stream flow. Jurisdiction of these features has not been determined.


***LEGEND***

- Limit of Disturbance
- Project Boundary
- Surface Water Feature
- Drainage Basin

N

0 0.125 0.25

Miles

**Figure 8-4.**
**Surface Water Features**
*Chiquita Canyon Landfill*
*Master Plan Revision*

## 8.5.4 Special-Status Plant and Wildlife Species

The following sections address special-status species observed, reported, or having the potential to occur at CCL or its immediate vicinity. Special-status species include those (1) listed or proposed for listing by state or federal agencies as rare, threatened, or endangered; (2) state Species of Special Concern; (3) species listed by CNPS with a designation of Category 2 (indicating species that are rare or endangered in California but more common elsewhere), 1B (indicating species that are rare or endangered in California and elsewhere), 3 (plants about which more information in needed), 4 (plants of limited distribution) or plants designated Locally Rare (4) bats identified by the Western Bat Working Group (WBWG) as low, moderate, or high priority species; or (4) species identified by biologists with regional knowledge as being of conservation concern or local interest.

Included in special-status species designations are species that are rare or uncommon in a local or regional context, and as such, would meet the CEQA definition of a rare species (CEQA Section 15380). CEQA directs that a special emphasis be placed on "environmental resources" that are rare or unique to the region and would be affected by a proposed project (CEQA Section 15125 (c)) or is so designated in local or regional plans, policies, or ordinances (*CEQA Guidelines*, Appendix G).

### 8.5.4.1 Special-Status Plants

Table 8-2 identifies the special-status plant species that have the potential to occur in the general vicinity of CCL, including status, habitat requirements, and range of occurrence in the vicinity of CCL. Species descriptions and occurrence information, unless otherwise indicated, were derived from the CNDDB (CDFW, 2002a, 2005, 2010, 2012a, 2012b, and 2015), CDFW species descriptions (CDFW, 2002b), CDFW SNA Program Information (CDFW, 2002c), Calflora database (Calflora, 2010, 2012, and 2016), technical reports (CH2M HILL, 2000a, 2000b, 2000c, and 2000d), the CNPS Rare and Endangered Plant Inventory (CNPS, 2015 and 2016), botanical literature (Hickman, 1993), and the rare plant survey conducted at CCL in 2016 (DMEC, 2016).

Findings of 2016 rare plant surveys are included in information in Table 8-2 and species descriptions follow.

Table 8-2. Potential Special-Status Plant Species, Chiquita Canyon Landfill
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Species | Status[a] (Federal/ State/CNPS) | Potential for Occurrence in Area of Potential Effects/ Nearest Identified Occurrence[b] | Habitat Requirements |
|---|---|---|---|
| **Mt. Pinos Onion** *Allium howellii* var. *clokeyi* | **---/---/1B.3** | This species was identified in the Warm Springs Mountain United States Geological Survey (USGS) quadrangle, but is presumed extirpated in that location (CNPS, 2015). | Great Basin scrub, along the edges of meadows and seeps, and in Pinyon and juniper woodland. |
| **Braunton's Milk-Vetch** *Astragalus brauntonii* | **FE/---/1B.1** | This species is recorded south of CCL near Simi Valley; a population was recently discovered in Thousand Oaks. It has historically occurred in Orange, Los Angeles, and Ventura counties. There is low probability of occurrence at CCL. | Chaparral, coastal sage scrub, grasslands; often associated with recent burns or disturbed areas. |
| **Nevin's Barberry** *Berberis nevinii* | **FE/SE/1B.1** | Known to occur in San Francisquito Canyon near the confluence with the Santa Clara River (CDFW, 2012a). Limited potential to occur (chaparral habitat, north-facing slopes). | Chaparral, cismontane woodland, coastal scrub, riparian scrub. |

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| Species | Status[a] (Federal/ State/CNPS) | Potential for Occurrence in Area of Potential Effects/ Nearest Identified Occurrence[b] | Habitat Requirements |
|---|---|---|---|
| **Round-Leaved Filaree** *California macrophylla* | **---/---/1B.2** | Documented within 10 miles of the Proposed Project area. This species was observed on the Castaic Mesa, east of the Castaic Lagoon and on the slopes east of Grasshopper Canyon (CDFW, 2012a). Unlikely to occur in the Proposed Project area. | Cismontane woodland, valley and foothill grassland. |
| **Catalina Mariposa Lily** *Calochortus catalinae* | **---/---/4.2** | This species was identified in the Newhall, Simi Valley, and Santa Susana USGS quadrangles (CNPS, 2015). | Chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands. |
| **Club-haired Mariposa Lily** *Calochortus clavatus* var. *clavatus* | **---/---/4.3** | This species was identified in the Proposed Project area in 2016 (DMEC, 2016). | Chaparral, cismontane woodland, valley and foothill grassland. |
| **Slender Mariposa Lily** *Calochortus clavatus* var. *gracilis* | **---/---/1B.2** | This species was identified in the Proposed Project area in 2016 (DMEC, 2016). | Chaparral, coastal scrub. Endemic to Los Angeles County. |
| **Late-Flowered Mariposa Lily** *Calochortus fimbriatus* | **---/---/1B.2** | Multiple occurrences for this species have been documented within 10 miles of the Proposed Project area, primarily in the Santa Susana Mountains (CDFW, 2012a). Unlikely to occur in the Proposed Project area. | Chaparral, cismontane woodland. |
| **Plummer's Mariposa Lily** *Calochortus plummerae* | **---/---/** | Multiple occurrences for this species have been documented within 10 miles of the Proposed Project area (CDFW, 2012a). Limited potential for occurrence in study area. | Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. |
| **Peirson's Morning-Glory** *Calystegia peirsonii* | **---/---/4.2** | This species was identified in the Proposed Project area in 2016 (DMEC, 2016). | Chaparral, coastal scrub, chenopod scrub, cismontane woodland, lower montane coniferous forest. |
| **Island Mountain-Mahogany** *Cercocarpus betuloides* var. *blancheae* | **---/---/4.3** | This species was identified in the Val Verde USGS quadrangle (CNPS, 2015). Mountain-Mahogany (*Cercocarpus betuloides*) was observed in the study area, however this variety has not been observed at CCL. | Found in closed-cone coniferous forests and chaparral. |
| **San Fernando Valley Spineflower** *Chorizanthe parryi* var. *Fernandina* | **FC/SE/1B.1** | Multiple occurrences for this species have been documented within 10 miles of the Proposed Project area (CDFW, 2012a). Recent observations in the Newhall Ranch area, Valencia Commerce Center, and near the Magic Mountain site, south of the Santa Clara River (CDFW, 2012a). Potential for occurrence in the Proposed Project area. | Found in coastal scrub in sandy soils at elevations of 500 to 4,000 feet. |

Table 8-2. Potential Special-Status Plant Species, Chiquita Canyon Landfill
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Species | Status[a] (Federal/ State/CNPS) | Potential for Occurrence in Area of Potential Effects/ Nearest Identified Occurrence[b] | Habitat Requirements |
|---|---|---|---|
| **Slender Clarkia** *Clarkia exilis* | **---/---/4.3** | This species was identified in the Piru USGS quadrangle (CNPS, 2015). | Found in cismontane woodlands in elevations of approximately 400 to 3,300 feet. |
| **Small-flowered Morning-glory** *Convolvulus simulans* | **---/---/4.2** | This species was identified in the Simi Valley USGS quadrangle (CNPS, 2015). | Found in coastal scrub, openings in chaparral, and valley and foothill grasslands with clay soils or serpentinite seeps. |
| **Santa Susana Tarplant** *Deinandra minthornii* | **---/---/1B.2** | Multiple occurrences for this species have been documented within 10 miles of CCL, primarily found within the Santa Susana Mountains (CDFW, 2012a). Low probability of occurrence within the Proposed Project area. | Chaparral, coastal sage scrub on sandstone outcrops and crevices. |
| **Paniculate Tarplant** *Deinandra paniculata* | **---/---/4.2** | This species has been identified in the Piru and Newhall USGS quadrangles (CNPS, 2015). | Coastal scrub, vernal pools, and valley and foothill grasslands in elevations of approximately 80 to 3,100 feet. Usually found in vernally mesic habitat. |
| **Mt. Pinos Larkspur** *Delphinium parryi* ssp. *purpureum* | **---/---/4.3** | This species has been identified in the Newhall and Cobblestone Mountain USGS quadrangles (CNPS, 2015). | Chaparral, Mojavean desert scrub, and pinyon and juniper woodland. |
| **Slender-Horned Spineflower** *Dodecahema leptoceras* | **FE/SE/1B.1** | Historically from Los Angeles, Riverside, and San Bernardino counties, but has been extirpated from much of range. Restricted to eight watersheds in Los Angeles, Riverside, and San Bernardino counties. A historical record for this species was last documented in 1893 (CDFW, 2012a). Possibly extirpated from the area and there is low probability of occurrence in the Proposed Project area. | Chaparral, coastal scrub (alluvial fan sage scrub). |
| **Conejo Dudleya** *parva* | **FT/---/1B.2** | This species has been documented near the Ronald Reagan Presidential Library over 10 miles from CCL (CDFW, 2015). Not anticipated in the Proposed Project area. | Coastal scrub, valley and foothill grassland in clayey or volcanic soils. |
| **San Gabriel Bedstraw** *Galium grande* | **---/---/1B.2** | This species was documented south of Elizabeth Lake and northeast of Castaic, last seen in 1979 (CDFW, 2012a). Not anticipated in the Proposed Project area. | Cismontane woodland, chaparral, broadleaf upland forest, lower montane coniferous forest. |
| **Palmer's Grapplinghook** *Harpagonella palmeri* | **---/---/4.2** | This species has been documented within 10 miles of the Proposed Project area, near Newhall (CDFW, 2012a). Potential for occurrence in the Proposed Project area. | Grassland, sage scrub, and chaparral. |

Table 8-2. Potential Special-Status Plant Species, Chiquita Canyon Landfill
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Species | Status[a] (Federal/ State/CNPS) | Potential for Occurrence in Area of Potential Effects/ Nearest Identified Occurrence[b] | Habitat Requirements |
|---|---|---|---|
| **California Sunflower** ***Helianthus californicus*** | **---/---/--- Locally Rare in Los Angeles County** | Occurs at CCL. Only two known occurrences in Los Angeles County besides at CCL (Calflora 2016). Found in one location in the southeastern portion of the closed and revegetated landfill (DMEC, 2016). | Foothill Woodland, herblands, freshwater wetlands, riparian habitats. |
| **Newhall Sunflower** *Helianthus inexpectatus* | **---/---/1B.1** | This species has been documented within 10 miles of the Proposed Project area in Newhall Ranch in the Castaic Spring area (CDFW, 2012a). Not anticipated in the Proposed Project area. | Marshes and swamps, riparian woodland, seeps. |
| **Los Angeles Sunflower** *Helianthus nuttallii* ssp. *parishii* | **---/---/1A** | Was last seen in 1937 until 5 to 10 individuals were observed in 2002 in the Newhall Ranch area on the southern edge of the Santa Clara floodplain. This species is presumed extinct in California and is not expected to occur in the Proposed Project area. | Marshes and swamps (coastal, salt, and freshwater) at elevations of 30 to 1,640 feet. |
| **Vernal Barley** *Hordeum intercedens* | **---/---/3.2** | This species was identified in the Whitaker Peak USGS quadrangle (CNPS, 2015). | Coastal dunes and scrub, valley and foothill grasslands (including saline flats and depressions), and vernal pools up to 3,300 feet. |
| **Mesa Horkelia** *cuneata* var. *puberula* | **---/---/1B.1** | This species was identified in the Simi Valley USGS quadrangle (CNPS, 2015). | Sandy or gravelly soils in chaparral (maritime), cismontane woodland, and coastal scrub. |
| **Southern California Black Walnut** *Juglans californica* | **---/---/4.2** | This species was identified in the Val Verde USGS quadrangle (CNPS, 2015). | Chaparral, cismontane woodlands, coastal scrub, and riparian woodlands. |
| **Fragrant Pitcher Sage** *Lepechinia fragrans* | **---/---/4.2** | This species was identified in the Warm Springs Mountain USGS quadrangle (CNPS, 2015). | Chaparral. |
| **Ross' Pitcher Sage** *Lepechinia rossli* | **---/---/1B.2** | This species was recorded in 2005 approximately 13 miles northeast of CCL (CDFW, 2015). Potential for occurrence in the Proposed Project area. | Chaparral. |
| **Ocellated Humboldt Lily** *Lilium humboldtii* ssp. *ocellatum* | **---/---/4.2** | This species was identified in the Warm Springs Mountain USGS quadrangle (CNPS, 2015). | Found in openings in chaparral, cismontane woodlands, coastal scrub, lower montane coniferous forest, and riparian woodlands |

Table 8-2. Potential Special-Status Plant Species, Chiquita Canyon Landfill
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| Species | Status[a] (Federal/ State/CNPS) | Potential for Occurrence in Area of Potential Effects/ Nearest Identified Occurrence[b] | Habitat Requirements |
|---|---|---|---|
| **Davidson's Bush Mallow** *Malacothamnus davidsonii* | **---/---/1B.2** | This species was recorded in 2003 in Potrero Canyon south of Potrero Creek in Newhall Ranch, near transmission lines 0.2 miles south of Pico Canyon Road, about 1 mile southeast from Santa Clara River (CDFW, 2012a). Potential for occurrence in the Proposed Project area. | Coastal scrub, riparian woodland, chaparral in sandy washes. |
| **Tehachapi Monardella** *linoides* ssp. *oblonga* | **---/---/1B.3** | This species was identified in the Cobblestone Mountain USGS quadrangle (CNPS, 2015). | Found in lower and upper montane coniferous forests, and pinyon and juniper woodlands. |
| **Ojai Navarretia** *Navarretia ojaiensis* | **---/---/1B.1** | Multiple occurrences for this species have been documented within 10 miles of CCL, primarily in Newhall Ranch on the west side of Salt Canyon watershed (CDFW, 2012a). There is low probability of occurrence in the Proposed Project area. | Chaparral, coastal scrub, valley and foothill grassland. |
| **Beavertail Cactus** *Opuntia basilaris* var. *basilaris* | **---/---/--- Locally Rare in Ventura County** | Occurs at CCL (DMEC, 2016). Multiple occurrences for this species have been documented within 10 miles of CCL. This variety is widespread throughout the Mojave Desert but decreases in abundance significantly coastward. | Chaparral, Coastal Sage Scrub, Joshua Tree Woodland, Mojavean Desert scrub, Pinyon and Juniper Woodland. |
| **Short-Joint Beavertail** *Opuntia basilaris* var. *brachyclada* | **---/---/1B.2** | Multiple occurrences for this species have been documented within 10 miles of CCL (CDFW, 2012a). This variety is thought to be restricted to the northeastern portion of the San Gabriel Mountains. Unlikely to occur in the Proposed Project area. | Chaparral, Joshua tree woodland, Mohavean desert scrub, pinyon juniper woodland, riparian woodland. |
| **California Orcutt Grass** *Orcuttia californica* | **FE/SE/1B.1** | Known from 28 occurrences in Ventura, Los Angeles, Riverside, and San Diego counties. Few historical occurrences in northern Baja California (USFWS, 2011b). Observed in the general vicinity of Newhall within 1 mile of the Proposed Project area (CDFW, 2012a). There is low probability of occurrence at CCL. | Vernal pools at elevations 50 to 2,165 feet. |
| **Lyon's Pentachaeta** *Pentachaeta lyonii* | **FE/SE/1B.1** | The nearest occurrence record is 16 miles away southwest of CCL, in the vicinity of Simi Valley, east of Highway 23, where two populations were recorded in 1991 and 1995 (CDFW, 2012b). Not anticipated in the Proposed Project area. | Chaparral, clearings in chaparral, grasslands, firebreaks. |
| **Hubby's Phacelia** *Phacelia hubbyi* | **---/---/4.2** | This species was identified in the Val Verde USGS quadrangle (CNPS, 2015). | Found in gravelly, rocky and talus substrate in chaparral, coastal scrub, and valley and foothill grasslands. |

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| Species | Status[a] (Federal/ State/CNPS) | Potential for Occurrence in Area of Potential Effects/ Nearest Identified Occurrence[b] | Habitat Requirements |
|---|---|---|---|
| **Mojave Phacelia** *Phacelia mohavensis* | **---/---/4.3** | This species was identified in the Newhall USGS quadrangle (CNPS, 2015). | Found in sandy or gravelly soils in cismontane woodlands, lower montane coniferous forests, meadows and seeps, and pinyon and juniper woodlands. |
| **Chaparral Ragwort** *Senecio aphanactis* | **---/---/2B.2** | Historical record for this occurrence was collected in 1901 in the general vicinity of Saugus (CDFW, 2012a). Unlikely to occur in the Proposed Project area. | Cismontane woodland, coastal scrub. |
| **Narrowleaf Stillingia** *linearifolia* | **---/---/--- Locally Rare** | Found in one location in the southeastern portion of the CCL (DMEC, 2016). | Dry slopes and washes in scrub habitats; <1,500 meters. |
| **Greata's Aster** *Symphyotrichum greatae* | **---/---/1B.3** | Historical records for this species include an occurrence in 1996 at Cienega Campground and an occurrence collected in 1930 in Hopper Canyon (CDFW, 2015). Unlikely to occur in the Proposed Project area. | Chaparral, cismontane woodland. |

[a] Key to Status Designations:

**Federal Designations:**

(FE) Federally Endangered, (FT) Federally Threatened, (FPE) Federally Proposed Endangered, (FPT) Federally Proposed Threatened, (FSC) Species of Concern, (FC) Candidate

**State Designations:**

(SE) State Endangered, (ST) State Threatened, (SR) State Rare, (CSC) Species of Special Concern, (CFP) Fully Protected Species

**California Native Plant Society (CNPS) Designations:**

(1) Rare in California and elsewhere; (2) Rare in California, but not elsewhere; (A) Presumed extirpated or extinct; (B) Rare, threatened, or endangered; (3) More information is needed; (4) Limited distribution; (.1) Seriously endangered in California; (.2) Fairly endangered in California; (.3) Not very endangered in California.

[b] See text for sources.

***Mt. Pinos Onion (Allium howellii* var. *clokeyi).*** Mt. Pinos onion is a CNPS List Category 1B.3 species. This perennial bulbiferous herb is found in Great Basin scrub, along the edges of meadows and seeps, and in Pinyon and juniper woodland. It occurs in elevations of approximately 4,250 to 6,100 feet. This species was identified in the Warm Springs Mountain USGS quadrangle, but is presumed extirpated in that location (CNPS, 2015). Mt. Pinos onion is not expected to occur in the Proposed Project area due to the lack of suitable habitat for this species.

***Braunton's Milk-Vetch (Astragalus brauntonii).*** Brauton's milk-vetch is federally endangered and is a CNPS List Category 1B.1 species. It typically occurs in chaparral, valley grassland, coastal sage scrub, and closed-cone pine forest (Calfora, 2012). This species is limited to carbonate soils in limestone outcrops and is a short-lived (2 to 3 years) perennial forb that grows to approximately 5 feet in height (Sclafani, 2006). Within the CNDDB, there are 35 record counts for this species in Los Angeles County (Calfora, 2012). There is low probability of occurrence of the species at CCL.

***Nevin's Barberry (Berberis nevinii).*** Nevin's barberry is federally and state endangered, and a CNPS List Category 1B.1 species (CDFW, 2012b). This evergreen shrub blooms from March through June (Calflora, 2012) and occurs in coarse soils and rocky slopes in chaparral and gravelly wash margins in alluvial scrub (USFWS, 2009). This species is known to occur in Los Angeles, Riverside, San Bernardino counties and potentially in San Diego County between 900 and 2,000 feet in elevation (USFWS, 2009). This species

occurs in San Francisquito Canyon several miles east of the landfill (CDFW, 2012a). A local specimen was mapped on steep north-facing slopes in low grade sandy washes in San Francisquito Canyon near the confluence with the Santa Clara River in 1965 (CDFW, 2005). During a field visit in 1987, the area had been developed with a plant nursery and with agricultural crops in the floodplains. In addition, this is a popular off-highway vehicle area that is heavily disturbed (CDFW, 2012a). This species has limited potential to occur at CCL.

***Round-Leaved Filaree (California macrophylla)*.** Round-leaved filaree is a CNPS List Category 1B.2 species (CDFW, 2012b). This species is associated with cismontane woodland and valley and foothill grassland habitats in clay soils and has been documented on Castaic Mesa (CDFW, 2012a). There are 23 occurrence records for this species in Los Angeles County (Calflora, 2012). Round-leaved filaree is not expected to occur in the Proposed Project area.

***Catalina Mariposa Lily (Calochortus catalinae)*.** Catalina Mariposa Lily is a CNPS List Category 4.2 species. This perennial bulbiferous herb is found in chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands. This species occurs in elevations from approximately 50 to 2,300 feet. This species was identified in the Newhall, Simi Valley, and Santa Susana USGS quadrangles (CNPS, 2015). This species has limited potential to occur at CCL.

***Club-Haired Mariposa Lily (Calochortus clavatus* var. *clavatus).*** The club-haired mariposa lily is a CNPS List Category 4.3 species (CDFW, 2012b). It typically occurs on chaparral, cismontane woodland, and valley and foothill grassland on serpentine clay and rocky soils at elevations between approximately 250 to 4,250 feet. This species is a long-stemmed, perennial bulb found from San Luis Obispo into Ventura and northwest Los Angeles counties. In the Liebre Mountains, this subspecies has been recorded in Mint Canyon, Bouquet Canyon, Texas Canyon, Osito Canyon, Red Mountain, Warm Springs Mountain, Castaic Canyon, Agua Dulce Canyon, Bee Canyon (adjacent to Soledad Canyon), Elizabeth Lake Canyon, and Newhall (CH2M HILL, 2000c). The nearest record to the landfill is an occurrence of a single plant on a hillside 1,000 feet east of the I-5/SR-126 interchange and 250 feet southeast of Stanford Avenue in openings in mixed sage scrub (CH2M HILL, 2000c). In 2016 the club-haired mariposa lily was documented at CCL (DMEC, 2016).

***Slender Mariposa Lily (Calochortus clavatus* var. *gracilis).*** The slender mariposa lily is a CNPS List Category 1B.2 species (CDFW, 2012b). It is a perennial species that is found in shaded foothill canyons, often in grassy slopes within elevations of approximately 1,380 to 2,500 feet. Multiple occurrences for this species have been documented within 1 mile off the Proposed Project area (CDFW, 2012a). Two collections of this species were documented within 5 miles of CCL, in 1930 and 1941 (CDFW, 2005). These have occurred at the mouth of Pico Canyon near Newhall in grassy slopes under oaks in chaparral on south facing slopes. In 2000, approximately 300 plants were observed north of Cooper Hill Drive and on the western side of San Francisquito Canyon, and multiple occurrences for this species have been documented within 1 mile of the Proposed Project area (CDFW, 2012a). In 2016 the slender mariposa lily was documented at CCL (DMEC, 2016).

***Late-Flowered Mariposa Lily (Calochortus fimbriatus)*.** Late-flowered mariposa lily is listed as a CNPS List Category 1B.2 species (CDFW, 2012b). It is a perennial herb that is native to California and is found between 902 and 6,250 feet (Calflora, 2012). Multiple occurrences for this species have been documented in the Santa Susana Mountains in chaparral and cismontane woodland habitats on serpentine soils (CDFW, 2012a). This species is unlikely to occur in the Proposed Project area.

***Plummer's Mariposa Lily (Calochortus plummerae).*** The Plummer's mariposa lily is a CNPS List Category 1B.2 species (CDFW, 2012b). This late blooming (May through July) mariposa lily is found in dry, rocky areas of alluvial fan sage scrub, chaparral, coastal sage scrub, and lower coniferous forest habitats at elevations less than 5,577 feet. This species is known to occur in Los Angeles, Ventura, Orange, Riverside, and San Bernardino counties (Calflora, 2012). Multiple occurrences for this species have been

documented within 10 miles of CCL (CDFW, 2012a). There is limited potential for occurrence within the Proposed Project area.

***Peirson's Morning-Glory (Calystegia peirsonii).*** Peirson's morning-glory is a CNPS List Category 4.2 species (CDFW, 2012b). This species is a perennial herb that grows as a vine on the ground or on other plants in Los Angeles County. It is found in openings in coastal sage scrub and chaparral habitats typically in disturbed or grassy open areas in elevations approximately between 3,300 and 5,000 feet. This species occurs in coastal sage scrub throughout the Newhall-Mint Canyon region (Calflora, 2012). In 2016 the Peirson's morning-glory was documented at CCL (DMEC, 2016).

***Island Mountain-Mahogany (Cercocarpus betuloides* var. *blancheae).*** Island mountain-mahogany is a CNPS List Category 4.3 species. This perennial evergreen shrub is found in closed-cone coniferous forests and chaparral. It occurs in elevations of approximately 100 to 2,000 feet. This species was identified in the Val Verde USGS quadrangle (CNPS, 2015). Mountain-Mahogany (*Cercocarpus betuloides*) was observed onsite, however there is limited potential for occurrence of this variety within the Proposed Project area.

***San Fernando Valley Spineflower (Chorizanthe parryi* var. *fernandina).*** San Fernando Valley spineflower is a federal candidate, state endangered, and a CNPS List Category 1B.1 species (CDFW, 2012b). This annual herb grows in sandy soils in coastal sage scrub habitats historically from Los Angeles, Orange, and San Diego counties. A number of occurrences have been documented within 1 mile of CCL, and since 2000, numerous occurrences of this species were observed at Newhall Ranch in multiple locations (CDFW, 2012a). There is limited potential for occurrence in the Proposed Project area.

***Slender Clarkia (Clarkia exilis).*** Slender clarkia is a CNPS List Category 4.3 species. This annual herb blooms from April to May and is found in cismontane woodlands in elevations of approximately 400 to 3,300 feet. This species was identified in the Piru USGS quadrangle (CNPS, 2015). Slender clarkia is not expected to occur in the Proposed Project area due to the lack of suitable habitat for this species.

***Small-flowered Morning-glory (Convolvulus simulans).*** Small-flowered morning-glory is a CNPS List Category 4.2 species. This annual herb blooms from March to July and is found in coastal scrub, openings in chaparral, and valley and foothill grasslands with clay soils or serpentinite seeps. This species occurs in elevations of approximately 100 to 2,300 feet and was identified in the Simi Valley USGS quadrangle (CNPS, 2015). There is some potential for occurrence of small-flowered morning-glory within the Proposed Project area.

***Santa Susana Tarplant (Deinandra minthornii).*** Santa Susana tarplant is listed a state rare species and is a CNPS List Category 1B.2 species (CDFW, 2012b). This species is associated with chaparral and coastal scrub habitats on sandstone outcrops and crevices (CDFW, 2012a). It has been documented within the Santa Susana Mountains near Hialeah Springs and between Fern Ann Falls and Devil Canyon (CDFW, 2012a). This species is not expected to occur within the Proposed Project area.

***Paniculate Tarplant (Deinandra paniculata).*** Paniculate tarplant is a CNPS List Category 4.2 species. This annual herb blooms from April to November and is usually found in vernally mesic habitat which is sometimes sandy. Paniculate tarplant can occur in coastal scrub, vernal pools, and valley and foothill grasslands in elevations of approximately 80 to 3,100 feet. This species has been identified in the Piru and Newhall USGS quadrangles (CNPS, 2015). There is some potential for occurrence of paniculate tarplant within the Proposed Project area.

***Mt. Pinos Larkspur (Delphinium parryi* ssp. *purpureum).*** Mt. Pinos larkspur is a CNPS List Category 4.3 species. This perennial herb blooms from May to June and is found in chaparral, Mojavean desert scrub, and pinyon and juniper woodland. This species occurs in elevations of approximately 3,300 to 8,500 feet and was identified in the Newhall and Cobbleston Mountain USGS quadrangles (CNPS, 2015). This species is not expected to occur within the Proposed Project area.

***Slender-Horned Spineflower (Dodecahema leptoceras).*** Slender-horned spineflower is listed as federally and state endangered as well as a CNPS List Category 1B.1 species (CDFW, 2012b). The spineflower is a small annual rosette of leaves with spreading stems that is generally restricted to silty, flood-deposited, older alluvial surfaces. The slender-horned spineflower is restricted to eight watersheds in Los Angeles, Riverside, and San Bernardino counties between approximately 650 to 2,300 feet in elevation. These include the Santa Clara River, Big Tujunga Wash, Lytle Creek, Santa Ana River, San Jacinto River, Bautista Creek, Temescal Canyon, and Vail Lake (CDFW, 2002c). A historical occurrence was recorded in the Newhall area in 1893 (CDFW, 2012a). The species has also been recorded east of CCL in Bee Canyon, Santa Clarita (Calflora, 2010). There is some potential for occurrence within the Proposed Project area.

***Conejo Dudleya (Dudleya parva)*.** Conejo Dudleya is federally threatened and a CNPS List Category 1B.2 species (CDFW, 2015). This perennial herb grows in clayey or volcanic soils on rocky slopes and grassy hillsides in elevations approximately between 200 and 1,500 feet. Conejo Dudleya is found in coastal sage scrub as well as valley and foothill grasslands. This species has been documented near the Ronald Reagan Presidential Library over 10 miles from CCL (CDFW, 2015). This species is not anticipated to occur in the Proposed Project area.

***San Gabriel Bedstraw (Galium grande)*.** San Gabriel bedstraw is a CNPS List Category 1B.2 species (CDFW, 2012b). This species is associated with cismontane woodland, chaparral, broadleafed upland forest, and lower montane coniferous forest habitats between approximately 1,400 and 4,000 feet (CDFW, 2012b). A historical record for this species was obtained from a 1979 collection south of the Elizabeth Lake guard station, northeast of Castaic (CDFW, 2012a). This species is not anticipated to occur within the Proposed Project area.

***Palmer's Grapplinghook (Harpagonella palmeri).*** Palmer's grapplinghook is a CNPS List Category 4.2 species (CDFW, 2012b). This small and inconspicuous annual grows on dry slopes and mesas in grassland, sage scrub, and chaparral habitats below 1,500 feet. It typically blooms between March and April and historically occurred from Los Angeles County to Baja California and on the Channel Islands. This species is known to occur in native grassland adjacent to sage scrub in Bouquet Canyon in the general CCL vicinity. Other occurrences in Los Angeles County have been documented at the San Mateo Wilderness Area in the Cleveland National Forest, Santa Catalina Island, and Newhall (Calflora, 2012). There is potential for occurrence at within the Proposed Project area.

***California Sunflower, (Helianthus californicus)*.** This erect to ascending perennial herb/subshrub grows to 4 to 5 feet high and blooms from July through September. This species is Locally Rare in Los Angeles County by CNPS (DMEC, 2016) with only two documented occurrences in the county (Calflora, 2016). The nearest offsite occurrence is located in Agua Dulce Canyon just north of State Route 14 (Calflora 2016). There are approximately 2 extant occurrences in western Los Angeles County (Calflora, 2016). This species was found during 2016 rare plant surveys at CCL in 1 location within the survey area on a revegetated flat in the southeastern portion of the landfill (DMEC, 2016). One plant was observed onsite.

***Newhall Sunflower (Helianthus inexpectatus)*.** The Newhall sunflower is listed as a CNPS List Category 1B.1 species (CDFW, 2012b). This species occurs in marshes, swamps, riparian woodlands, and seeps (Calfora, 2012). It has been documented in Newhall Ranch in the Castaic Spring area, an occurrence which resulted in the description of the species (CDFW, 2012a). This species is not expected to occur within the Proposed Project area.

***Los Angeles Sunflower (Helianthus nuttallii* ssp. *parishii).*** Los Angeles sunflower is listed as a CNPS List Category 1A species, meaning it has been presumed extinct in California (CDFW, 2012b). It is a perennial herb that blooms from August to October (Calflora, 2012). The Los Angeles sunflower was historically found in marshes and swamps at elevations of 32 to 1,640 feet in Los Angeles, Orange, and San Bernardino counties. This species is not anticipated to occur at CCL because of its extreme rarity and because it typically requires wetland conditions, although it has been found in non-wetlands

(Calflora, 2012). In 2002, 5 to 10 individuals thought to be this species were observed in the Newhall Ranch area, on the southern edge of the Santa Clara River floodplain (Fausset and Chambers, 2002), but were later determined to be Newhall sunflower (*Helianthus inexpectatus*), a newly described species.

***Vernal Barley (Hordeum intercedens).*** Vernal Barley is a CNPS List Category 3.2 species. This annual herb blooms from March to June and is found in coastal dunes, coastal scrub, valley and foothill grasslands (including saline flats and depressions), and vernal pools. This species occurs in elevations up to approximately 3,300 feet and was identified in the Whitaker Peak USGS quadrangle (CNPS, 2015). There is some potential for occurrence of paniculate tarplant within the Proposed Project area.

***Mesa Horkelia (Horkelia cuneata* var. *puberula).*** Mesa horkelia is a CNPS List Category 1B.1 species. This perennial herb blooms from February to September and is found in sandy or gravelly soils. This species occurs in chaparral (maritime), cismontane woodland, and coastal scrub in elevations of approximately 230 to 2,700 feet. Mesa horkelia was identified in the Simi Valley USGS quadrangle (CNPS, 2015). There is limited potential for occurrence within the Proposed Project area.

***Southern California Black Walnut (Juglans californica).*** Southern California black walnut is a CNPS List Category 4.2 species. This deciduous tree is found in chaparral, cismontane woodlands, coastal scrub, and riparian woodlands. This species occurs in elevations of approximately 150 to 3,000 feet and was identified in the Val Verde USGS quadrangle (CNPS, 2015). There is limited potential for occurrence within the Proposed Project area.

***Fragrant Pitcher Sage (Lepechinia fragrans).*** Fragrant pitcher sage is a CNPS List Category 4.2 species. This perennial shrub blooms from March to October and is found in chaparral in elevations of approximately 70 to 4,300 feet. Fragrant pitcher sage was identified in the Warm Springs Mountain USGS quadrangle (CNPS, 2015). There is limited potential for occurrence within the Proposed Project area.

***Ross' Pitcher Sage (Lepechinia rossli).*** Ross' pitcher sage is a CNPS List Category 1B.2 species (CDFW, 2015). It is a perennial shrub that is associated chaparral vegetation. It was last observed in 2005 approximately 13 miles northeast of CCL at an elevation above 2,500 feet (CDFW, 2015). There is potential for occurrence at within the Proposed Project area.

***Ocellated Humboldt Lily (Lilium humboldtii* ssp. *ocellatum).*** Ocellated Humboldt lily is a CNPS List Category 4.2 species. This perennial bulbiferous herb blooms from March to October and is found in openings in chaparral, cismontane woodlands, coastal scrub, lower montane coniferous forest, and riparian woodlands. Ocellated Humboldt lily occurs in elevations of approximately 100 to 5,900 feet and was identified in the Warm Springs Mountain USGS quadrangle (CNPS, 2015). There is limited potential for occurrence within the Proposed Project area.

***Davidson's Bush Mallow (Malacothamnus davidsonii).*** Davidson's bush mallow is listed as a CNPS List Category 1B.2 species (CDFW, 2012b). It is a perennial shrub that is endemic to California and is generally found in coastal scrub, riparian woodlands, and chaparral in sandy washes (Calflora, 2012). According to Calfora, although this species usually occurs in non-wetlands, occasionally it has been found in wetlands. In 2003, samples were collected 0.2 miles south of Pico Canyon Road, about 1 mile southeast from the Santa Clara River (CDFW, 2012a). There is potential for this species to occur in the Proposed Project area.

***Tehachapi Monardella (Monardella linoides* ssp. *oblonga).*** Tehachapi monardella is a CNPS List Category 1B.3 species. This perennial rhizomatous herb blooms from June to August and is found in lower and upper montane coniferous forests, and pinyon and juniper woodlands. Tehachapi monardella occurs in elevations of approximately 3,000 to 8,100 feet and was identified in the Cobblestone Mountain USGS quadrangle (CNPS, 2015). This species is not expected to occur within the Proposed Project area.

***Ojai Navarretia (Navarretia ojaiensis).*** The Ojai navarretia is listed as a CNPS List Category 1B.1 species (CDFW, 2012b). It occurs in chaparral, coastal scrub, and valley and foothill grassland habitats at elevations ranging from approximately 900 to 2,050 feet (Calflora, 2012). This species has been documented within Newhall Ranch on the western side of the Salt Canyon watershed (CDFW, 2012a). There is low probability of occurrence for this species within the Proposed Project area.

***Beavertail Cactus (Opuntia basilaris* var. *basilaris).*** This plant is a succulent low-growing shrub that blooms from April through June. It is primarily associated with desert habitats but extends west into Ventura County, the Tule Basin portion of the San Joaquin Valley in Kern County, and one occurrence in the Carizzo Plain of San Luis Obispo County. DMEC (2016) found this variety in 5 locations within the survey area. It mostly occurs on the slopes of herbaceous and Coastal Sage Scrub alliances. This species is Locally Rare in western Los Angeles County by CNPS (DMEC, 2016). The nearest offsite occurrence is located in the Valencia Commerce Center and on the Entrada area of Newhall Ranch a few miles east of the CCL (Calflora, 2016). There are approximately 5 extant occurrences in western Los Angeles County (Calflora, 2016), including the population onsite. The observed onsite occurrences ranged from 1 to 43 plants, and a total of over 50 plants occur on the landfill parcels or immediately adjacent to them.

***Short-Joint Beavertail (Opuntia basilaris* var. *brachyclada).*** Short-joint beavertail is a federal Species of Concern and is listed as a CNPS List Category 1B.2 species (CDFW, 2012b). This subspecies of beavertail cactus is found in chaparral, Joshua tree woodlands, desert scrub, and pinyon juniper woodland in the San Gabriel and San Bernardino mountain ranges. It typically occurs at elevations less than 3,936 to 5,905 feet and blooms between April and June. This species is documented to occur in Los Angeles and San Bernardino counties, and has been recorded in Newhall (Calflora, 2012). There is limited potential for this species to occur within the Proposed Project area.

***California Orcutt Grass (Orcuttia californica).*** California Orcutt grass is federally and state endangered and is a CNPS List Category 1B.1 species (CDFW, 2012b). This species is an annual herb native to California and Baja California that occurs in valley grasslands and freshwater wetlands (Calfora, 2012). California Orcutt grass is associated with deep ephemeral vernal pools that are underlain by clay soils (USFWS, 2011b). Plants have leaf and root anatomy and physiology adapted to conditions in the wettest, longest lasting portion of vernal pools (USFWS, 2011b). There is low probability of occurrence of the species in the Proposed Project area due to the lack of suitable habitat at CCL.

***Lyon's Pentachaeta (Pentachaeta lyonii).*** Lyon's pentachaeta is listed as federally and state endangered and is listed as a CNPS List Category 1B.1 species (CDFW, 2012b). It is an annual herb that blooms from March through August and is generally found in chaparral and valley and foothill grasslands (Calflora, 2012). This species occurs in a patchy distribution on rocky clay soils of volcanic origin, with a high percentage of bare ground and low percentage of vegetation cover (USFWS, 2008). There are no occurrence records for this species in the immediate vicinity of CCL. The closest observations were more than 16 miles away, in the vicinity of Simi Valley, East of Highway 23 and southwest of the landfill, where two populations were recorded in 1991 and 1995 (CDFW, 2002a). The chaparral vegetation provides potential habitat at CCL for Lyon's pentachaeta, although this species is not anticipated to occur in the Proposed Project area.

***Hubby's Phacelia (Phacelia hubbyi).*** Hubby's phacelia is a CNPS List Category 4.2 species. This annual herb blooms from April to July and is found in gravelly, rocky and talus substrate in chaparral, coastal scrub, and valley and foothill grasslands. This species occurs in elevations up to approximately 3,300 feet and was identified in the Val Verde USGS quadrangle (CNPS, 2015). There is limited potential for Hubby's phacelia to occur within the Proposed Project area.

***Mojave Phacelia (Phacelia mohavensis).*** Mojave phacelia is a CNPS List Category 4.3 species. This annual herb blooms from April to August and is found in sandy or gravelly soils. This species occurs in cismontane woodlands, lower montane coniferous forests, meadows and seeps, and pinyon and juniper woodlands.

This species occurs in elevations of approximately 4,600 to 8,200 feet and was identified in the Newhall USGS quadrangle (CNPS, 2015). This species is not expected to occur within the Proposed Project area.

***Chaparral Ragwort (Senecio aphanactis)*.** Chaparral ragwort is a CNPS List Category 2B.2 species (CDFW, 2012b) that typically blooms between January and April. This annual herb grows in alkaline soils in cismontane woodland and coastal sage scrub in drying alkaline flats at elevations of approximately 70 to 1,900 feet. Rayless ragwort is known from Southern California in several counties including Los Angeles County. This species is known historically to occur (1901) in drying alkaline flats in Saugus within 5 miles from the study area (CDFW, 2012a). This species is not anticipated to occur in the Proposed Project area due to lack of habitat.

***Narrow-leaved Stillingia (Stillingia linearifolia).*** This species is a perennial herb/subshrub that grows up to 3 feet high and blooms between March and May. It ranges from Ventura County eastward to the eastern Mojave Desert and south to San Diego County. DMEC (2016) found this species in one location within the survey area. It occurs in the bottoms of a narrow ephemeral drainage in an area dominated by Coastal Sage Scrub alliances. This species is Locally Rare in western Los Angeles County by CNPS (DMEC, 2016). The nearest offsite occurrence is located in Long Canyon north of Potrero Canyon on the Newhall Ranch (Calflora, 2016). There are approximately 5 extant occurrences in western Los Angeles County (Calflora, 2016). The observed onsite occurrence consisted of one plant, occurring in the southeastern area of the landfill site.

***Greata's Aster (Symphyotrichum greatae)*.** Greata's aster is listed as a CNPS List Category 1B.3 species (CDFW, 2012b). It is a rhizomatous perennial herb that is endemic to California and occurs in chaparral habitats (Calflora, 2012). Although this species has been documented within 10 miles of CCL, the occurrence record was obtained from a 1930 collection in Hopper Canyon (CDFW, 2012a). This species is not expected to occur within the Proposed Project area.

#### 8.5.4.2 Special-Status Wildlife

Table 8-3 identifies the special-status wildlife species that have the potential to occur in the general vicinity of the landfill, and includes status, habitat types, potential for occurrence, and records of occurrence in the vicinity of CCL. This section provides species descriptions and additional information about occurrences at CCL.

Table 8-3. Potential Special-Status Wildlife Species, Chiquita Canyon Landfill
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Species | Status[a] (Federal/State/ Other | Potential for Occurrence in Area of Potential Effects[b] | Nearest Identified Occurrence[c] | Habitat Requirements |
|---|---|---|---|---|
| **Birds** | | | | |
| **Cooper's Hawk** *Accipiter cooperii* | **---/WL/---** | Observed (forage) | Santa Clara River (CNDDB); onsite | Riparian woodland and forest, including willows, cottonwoods, and sycamores. |
| **Tricolored Blackbird** *Agelaius tricolor* | **---/CSC/LACo-PII** | Observed | Onsite | Robust emergent marsh for breeding, or open areas (landfills) for foraging. |

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| Species | Status[a] (Federal/State/ Other | Potential for Occurrence in Area of Potential Effects[b] | Nearest Identified Occurrence[c] | Habitat Requirements |
|---|---|---|---|---|
| **Southern California Rufous-Crowned Sparrow** *Aimophila ruficeps canescens* | **---/WL/---** | Potential | White Oak Park and Bouquet Canyon. *Aimophila ruficeps* was observed at CCL, however this sub-species has not been identified onsite. | Coastal sage scrub and spare mixed chaparral (CDFW, 2012a). |
| **Grasshopper Sparrow** *Ammodramus savannarum* | **---/CSC/LACo-PII** | Potential | Tapia Canyon, north of Newhall | Dense grasslands on rolling hills, lowland plains in valleys and on lower mountain slopes (CDFW, 2012a). |
| **Bell's Sage Sparrow** *Amphispiza belli* | **---/WL/---** | Potential | Southeast of Castaic Lake | Nests in chaparral dominated by dense chamise (*Adenostoma fasciculatum*) stands and coastal sage scrub (CDFW, 2012a). |
| **Golden Eagle** *Aquila chrysaetos* | **BCC/CFP/LACo-PII** | Potential (forage) | --- | Open country, rolling foothills, mountain areas and desert; breeds on overhanging ledges, high cliff sites, and large trees. |
| **Short-Eared Owl** *Asio flammeus* | **---/CSC/LACo-PI** | Observed | Onsite | Areas with few trees such as grasslands, coastal estuaries, and wetlands. |
| **Burrowing Owl** *Athene cunicularia* | **---/CSC/LACo-PII** | Potential | Hasley Canyon (CNDDB), 2007 | Open grasslands and agricultural fields with burrowing mammal populations. |
| **Swainson's Hawk** *Buto swainson* | **BCC/ST/LACo-PII** | Unlikely to breed, may forage | 2 miles west of Newhall (CNDDB), 1898 | Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees (CDFW, 2015). |
| **Coastal Cactus Wren** *Campylorhynchus brunneicapillus couesi* | **---/CSC/LACo-PII** | Unlikely | --- | Obligate, coastal sage scrub with extensive stands of *Opuntia* sp. |
| **Turkey Vulture (breeding)** *Cathartes aura* | **---/---/LACo-PI** | Potential to breed (foraging observed) | --- | Nesting birds require remote rocky areas where they nest on the ground or in crevices. |
| **Northern Harrier** *Circus cyaneus* | **---/CSC/LACo-PII** | Potential | --- | Breeds in open country such as grasslands and agricultural fields near wetlands; prefers extensive grasslands. |

Table 8-3. Potential Special-Status Wildlife Species, Chiquita Canyon Landfill
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Species | Status[a] (Federal/State/ Other | Potential for Occurrence in Area of Potential Effects[b] | Nearest Identified Occurrence[c] | Habitat Requirements |
|---|---|---|---|---|
| **Western Yellow-Billed Cuckoo** *Coccyzus americanus occidentalis* | **FT; BCC/SE/LACo-PII** | Unlikely (Extirpated in region) | Santa Clara River, 1979 | Dense, wide riparian woodlands with well-developed understories adjacent to slow-moving watercourses, backwaters, or seeps. |
| **White-Tailed Kite** *Elanus leucurus* | **---/CFP/LACo-PII** | Potential (foraging or breeding) | Santa Clara River in Valencia, 2005 (CNDDB) | Open country with trees such as oak, willow, and sycamore. |
| **Southwestern Willow Flycatcher** *Empidonax traillii extimus* | **FE/SE/LACo-PII** | Potential (downstream in river corridors only) | --- | Dense early seral stage willow and mule fat scrub with some riparian overstory trees. |
| **California Horned Lark** *Eremophila alpestris actia* | **---/WL/LACo-PI** | Observed (breeding, foraging) | Potentially onsite, subspecies not confirmed | Open grasslands, agricultural fields, disturbed and barren areas. |
| **Prairie Falcon** *Falco mexicanus* | **BCC/WL/LACo-PI** | Potential to breed, foraging observed | Los Padres National Forest; onsite | Forages in open, arid country; breeds on cliff sites. |
| **California Condor** *Gymnogyps californianus* | **FE/SE/LACo-PII** | Unlikely | Los Padres National Forest | Forages in open country; nests on isolated cliff faces. |
| **Yellow-Breasted Chat** *Icteria virens* | **---/CSC/LACo-PII** | Potential | Santa Clara River | Dense scrub and early seral stage riparian habitat including willow and mule fat thickets. |
| **Loggerhead Shrike** *Lanius ludovicianus* | **BCC/CSC/LACo-PII** | Observed | Castaic Creek; onsite | Grasslands, sage scrub, chaparral, riparian, alluvial, and characterized by open scattered trees and shrubs. |
| **Coastal California Gnatcatcher** *Polioptila californica* | **FT/CSC/LACo-PII** | Potential | Critical habitat 7.5 miles east of CCL; Placerita Canyon; single individual detected at Newhall Valencia Commerce Center in 2007 (CDFW, 2015). | Obligate, permanent resident of coastal sage scrub or chaparral in vicinity of coastal sage scrub. |
| **Bank Swallow (breeding)** *Riparia* | **---/ST/LACo-PII** | Unlikely (foraging) | Simi Valley, 1897 | Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. |
| **Yellow Warbler** *Setophaga petechia* | **BCC/CSC/LACo-PII** | Potential | Santa Clara River (CNDDB) | Dense riparian woodland and scrub, including willows, cottonwoods, sycamores, and mule fat. |

Table 8-3. Potential Special-Status Wildlife Species, Chiquita Canyon Landfill
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Species | Status[a] (Federal/State/ Other | Potential for Occurrence in Area of Potential Effects[b] | Nearest Identified Occurrence[c] | Habitat Requirements |
|---|---|---|---|---|
| **Least Bell's Vireo** *Vireo bellii pusillus* | **FE/SE/LACo-PII** | Potential (downstream in river corridors only) | Critical habitat on Santa Clara River; documented on river in 2013 | Dense riparian scrub, with some overstory canopy with high structural diversity; includes willows, mule fat, and cottonwoods. |
| **Amphibians** | | | | |
| **Arroyo Toad** *Anaxyrus californicus* | **FE/CSC/---** | Potential (downstream in river corridors only) | Santa Clara River, east of I-5 | Perennial or intermittent streams with shallow gravelly pools lasting a minimum of 60 to 90 days; sandy streamside terraces. |
| **Foothill Yellow-Legged Frog** *Rana boylii* | **---/CSC/---** | Unlikely | North of Lake Piru, 1949 | Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats (CDFW, 2012a). |
| **California Red-Legged Frog** *Rana draytonii* | **FT/CSC/---** | Potential (downstream in river corridors only) | Critical habitat high on the watershed on Castaic Creek | Aquatic habitats consisting of streams or wetland areas with limited emergent vegetation, dense riparian vegetation, and an absence of bullfrogs. |
| **Western Spadefoot** *Spea hammondii* | **---/CSC/---** | Observed | South of Santa Clara River in ponds; onsite | Seasonal pools lacking fish, bullfrogs, and crayfish for breeding; adjacent grasslands for foraging. |
| **Coast Range Newt** *Taricha torosa* | **---/CSC/---** | Potential (downstream in river corridors only) | --- | Coastal drainages in Southern California; slow moving streams and ponds with adjacent intact terrestrial vegetation. |
| **Reptiles** | | | | |
| **Silvery Legless Lizard** *Anniella pulchra* | **---/CSC/---** | Potential | --- | Sandy and loose loamy soils under sparse vegetation of beaches, chaparral, pine-oak woodland, or sycamores, cottonwoods, or oaks that grow on stream terraces. |
| **Western Pond Turtle** *Emys marmorata* | **---/CSC/---** | Potential (downstream in river corridors only) | Santa Clara River, 2000 | Perennial watercourses with pools up to 2 feet deep and basking sites. |
| **San Diego Horned Lizard/Coast Horned Lizard** *Phrynosoma blainvillii* | **---/CSC/---** | Potential | Santa Clara River | Open grassland, scrub, and chaparral with harvester ant mounds. |
| **Coast Patch-Nosed Snake** *Salvadora hexalepis virgultea* | **---/CSC/---** | Potential | Hopper Creek, 2008 | Brushy or shrubby vegetation in coastal southern California. |

Table 8-3. Potential Special-Status Wildlife Species, Chiquita Canyon Landfill
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Species | Status[a] (Federal/State/ Other | Potential for Occurrence in Area of Potential Effects[b] | Nearest Identified Occurrence[c] | Habitat Requirements |
|---|---|---|---|---|
| **Two-Striped Garter Snake** *Thamnophis hammondii* | **---/CSC/---** | Potential (downstream in river corridors only) | Santa Clara River | Aquatic stream channels with large sandy or rocky streambeds with dense adjacent riparian canopy. |
| **Mammals** | | | | |
| **Pallid Bat** *Antrozous pallidus* | **---/CSC/ WBWG: H** | Potential | Castaic (CNDDB), 1938 | Forages close to ground in open areas; roosts in caves, rock crevices, mines, buildings, and hollow trees. |
| **Mexican Long-Tongued Bat** *Choeronycteris mexicana* | **---/CSC/ WBWG: H** | Potential | Ventura County | Forages on nectar, pollen, and occasionally fruit; roosts in dimly lit buildings or caves. |
| **Townsend's Western Big-Eared Bat** *Corynorhinus townsendii* | **---/CT, CSC/WBWG: H** | Potential | Santa Cruz Island | Variety of open habitats; day and maternity roosts in caves, mines, tunnels, buildings. |
| **Spotted Bat** *Euderma maculatum* | **---/CSC/WBWG: H** | Potential | Castaic Creek, 1890 | Forages on medium-sized moths, beetles, and caddis flies in desert scrubland open forest areas; roosts in rock crevices on cliff faces. |
| **Western Mastiff Bat** *Eumops perotis californicus* | **---/CSC/WBWG: H** | Potential | North of Lake Piru, 1992 | Roost in rock crevices on high cliff faces, high buildings, trees, and tunnels; forages over a variety of habitats including coastal scrub, and urban areas. |
| **San Diego Black-Tailed Jackrabbit** *Lepus californicus bennettii* | **---/CSC/---** | Potential | --- | Coastal sage brush, and scrub and grasslands. |
| **California Leaf-Nosed Bat** *Macrotus californicus* | **---/CSC/WBWG: H** | Potential | Bell Canyon; another site 11 miles southwest | Desert riparian, succulent scrub, desert scrub, and other arid habitats; roosts in mines, caves far from human habitation. |
| **Long-Eared Myotis** *evotis* | **---/---/WBWG: M** | Potential | Pasadena | Scrub, chaparral, open areas; uses small caves and crevices for roosting. |
| **Cave Myotis** *Myotis velifer* | **---/CSC/WBWG: M** | Potential | Valencia, 1994 | Desert scrub, desert succulent scrub, and desert riparian; cave dwelling, may also roost in rock crevices, old buildings, carports, and abandoned cliff swallow nests. |
| **Long-Legged Myotis** *Myotis volans* | **---/---/WBWG: H** | Potential | Pasadena | Coastal scrub, chaparral, woodlands; roosts in rock crevices, buildings, and under tree bark. |

Table 8-3. Potential Special-Status Wildlife Species, Chiquita Canyon Landfill
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Species | Status[a] (Federal/State/ Other | Potential for Occurrence in Area of Potential Effects[b] | Nearest Identified Occurrence[c] | Habitat Requirements |
|---|---|---|---|---|
| **Yuma Myotis** *Myotis yumanensis* | **---/---/WBWG: LM** | Potential | --- | Widespread in California; forages over water; roosts in buildings, mines, and crevices. |
| **San Diego Desert Woodrat** *Neotoma lepida intermedia* | **---/CSC/---** | Potential | --- | Moderate to dense canopy chaparral, sage scrub, woodlands; rocky outcrops and rocky slopes. |
| **Pocketed Free-Tailed Bat** *Nyctinomops femorosaccus* | **---/CSC/ WBWG: M** | Potential | Inglewood, 1994 | Forages over ponds, streams, or open habitat; roosts in rock crevices in cliff sites. |
| **Big Free-Tailed Bat** *Nyctinomops macrotis* | **---/CSC/WBWG: MH** | Potential | Burbank, 1997 | Open or urban areas; rugged, rocky terrain. |
| **American Badger** *Taxidea taxus* | **---/CSC/---** | Potential | 5 miles north-northeast of Fillmore, 1991 | Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. |
| **Fish** | | | | |
| **Santa Ana Sucker** *Castostomus santaanae* | **FT/CSC/---** | Potential (downstream in river corridors only) | Santa Clara River, 2007 | Cool, clear water streams; prefer sand, boulder, or cobble bottoms with presence of filamentous algae. |
| **Unarmored Threespine Stickleback** *Gasterosteus aculeatus williamsoni* | **FE/SE; CFP/---** | Potential (downstream in river corridors only) | Castaic Creek, 2005 | Weedy pools and backwaters in small, slow, clear streams and rivers. |
| **Arroyo Chub** *Gila orcuttii* | **---/CSC/---** | Potential (downstream in river corridors only) | Santa Clara River, 2005 | Cool perennial streams with riffles and pools, with sand and mud substrates, and dense riparian canopy. |
| **Southern Steelhead Trout** *Oncorhynchus mykiss irideus* | **FE/CSC/---** | Potential (downstream in river corridors only) | Fillmore Quadrant (CDFW, 2010) | Dependent on life stage; tributary streams with gravel substrates. |
| **Invertebrates** | | | | |
| **Monarch Butterfly (Overwintering population)** *Danaus plexippus* | **---/---/ (local conservation concern)** | Unlikely for winter roost site; potential for migration | Bee Canyon (CDFW, 2015) | Winter roost sites located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. |
| **San Emigdio Blue Butterfly** *Plebulina emigdionis* | **---/---/ (local conservation concern)** | Potential | Northern Los Angeles County; Bouquet/Mint Canyons | Larval hostplant is *Atriplex canescens*, which occurs on the project site; in shadscale scrub in desert canyons and washes. |

Table 8-3. Potential Special-Status Wildlife Species, Chiquita Canyon Landfill
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Species | Status[a] (Federal/State/ Other | Potential for Occurrence in Area of Potential Effects[b] | Nearest Identified Occurrence[c] | Habitat Requirements |
|---|---|---|---|---|
| **Riverside Fairy Shrimp** *Streptocephalus woottoni* | **FE/---/---** | Unlikely | Tierra Rejada Vernal Pool Preserve (CDFW, 2015) | Seasonally astatic and vernal pools filled by winter/spring rains. |

[a] Key to status designations-

**Federal Designations:**

(FE) Federally Endangered, (FT) Federally Threatened, (FPE) Federally Proposed Endangered, (FPT) Federally Proposed Threatened, (FC) Candidate, (BCC) Birds of Conservation Concern

**State Designations:**

(SE) State Endangered, (ST) State Threatened, (CT) Candidate Threatened, (SR) State Rare, (CSC) Species of Special Concern, (CFP) Fully Protected Species, (WL) Watch List

**Other Designations:**

(WBWG) Western Bat Working Group: low (L), moderate (M), and high (H) priority

Los Angeles County Sensitive Bird Species List:

(LACo-PI) County Sensitive Bird Species, (LACo-PII) County Sensitive Bird Species listed by other agencies

Source: Los Angeles Audubon. 2009. Los Angeles County's Sensitive Bird Species. *Western Tanager* 75(3):E1-E24.

[b] Potential rankings –Unlikely, Potential, Observed

[c] See text for sources.

### Birds

***Cooper's Hawk (Accipiter cooperii).*** The Cooper's hawk is recognized as a California Species of Special Concern by CDFW (CDFW, 2011). This species commonly breeds in riparian areas and oak woodlands. The Cooper's hawk is also found where wooded areas occur in patches and groves and often uses patchy woodlands and edges with snags for perching. This species primarily feeds on avian prey caught in the air, on the ground, and in vegetation. Within their range in California, it most frequently uses dense stands of oak, riparian deciduous, or other forest habitats near water (Zeiner et al., 1990a). Although no breeding habitat is present at CCL, Cooper's hawks have been observed foraging over the area during the field surveys in chaparral and riparian edge habitats.

***Tricolored Blackbird (Agelaius tricolor).*** The tricolored blackbird is recognized as a California Species of Special Concern (CDFW, 2011). The tricolored blackbird was given emergency Endangered status under CESA in December 2014. This listing provided temporary (6-month) protection but was allowed to expire in June 2015. As of September 18, 2015, the species' federal status is under review by USFWS after a 90-day finding that formal listing on the FESA may be warranted. This species is nomadic, wandering during the non-breeding season and occupying colony sites intermittently (Unitt, 1984). During the breeding season, it is gregarious and a colonial nester that requires freshwater marshes and ponds for nesting and grasslands and agricultural fields for foraging. Tricolored blackbirds frequent the active landfill areas at CCL, foraging in mixed flocks with other blackbirds. They were detected during field surveys in April 2002. No breeding habitat is present at the landfill, but foraging habitat is present at the active landfill area.

**Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*).** The southern California rufous-crowned sparrow is a CDFW watch list species (CDFW, 2015). This sub-species is a resident in southern California coastal sage scrub and sparse mixed chaparral habitats and frequents relatively steep, rocky hillsides with grass and forb patches (CDFW, 2012a). This sub-species has been documented within 10 miles of CCL and has been observed in White Oak Park and west of Bouquet Canyon

(CDFW, 2012a). Rufous-crowned sparrow (*Aimophila ruficeps*) was observed at CCL, however this sub-species has not been identified onsite. Potential habitat is present on CCL including limited foraging or breeding habitat.

***Grasshopper Sparrow (Ammodramus savannarum).*** The grasshopper sparrow is recognized as a California Species of Special Concern (CDFW, 2011). Its general habitat associations include dense grasslands on rolling hills, lowland plains, valleys, and hillsides on lower mountain slopes. For nesting, this species prefers native grasslands with a mix of grasses, forbs, and scattered shrubs and is loosely colonial (CDFW, 2012a). Multiple occurrences for this species have been documented within 10 miles of the Proposed Project area, including Tapia Canyon, San Francisquito Canyon, Wayside Canyon southeast of Castaic Lake, Bouquet Canyon, and near Piru Creek and Aqua Blanca Creek (CDFW, 2012a). Potential habitat is present on CCL including limited foraging or breeding habitat.

***Bell's Sage Sparrow (Amphispiza belli belli).*** Bell's sage sparrow is a CDFW watch list species (CDFW, 2015). This species nests in chaparral habitat dominated with dense stands of chamise and within the southern portion of its range, Bell's sage sparrow is found in coastal sage scrub (CDFW, 2012a). Multiple occurrences for this species have been documented within 10 miles of the Proposed Project area, including southeast of Castaic Lake and in Bouquet Canyon (CDFW, 2012a). Although limited chamise is present at CCL, some suitable habitat for this species is present.

***Golden Eagle (Aquila chrysaetos).*** The golden eagle is recognized as a California Species of Special Concern and is Fully Protected by CDFW (CDFW, 2011). Habitat for this species is typically rolling foothills, mountain areas, and desert. Golden eagles need open terrain for hunting and prefer grasslands, deserts, savannah, and early successional stages of forest and shrub habitats. This species prefers to nest in rugged, open habitats with canyons and escarpments, with overhanging ledges and cliffs and large trees used as cover. No CNDDB records occur for this species in the vicinity of CCL. No golden eagles were observed during field surveys or have been reported as observed, but there is a potential for golden eagles to forage in open habitats similar to those at CCL, including grasslands and revegetated landfill.

***Short-Eared Owl (Asio flammeus).*** The short-eared owl is recognized as a California Species of Special Concern (CDFW, 2011). This species commonly occurs in areas with few trees, such as agricultural fields, grasslands, and coastal estuaries. Within Southern California, where it is considered a non-breeding bird, it is seen in saltwater marshes, freshwater marshes, tall grass meadows, and agricultural lands at almost any time of year, but most commonly late August through mid-April (Terres, 1980). Although no CNDDB records occur for this species in the vicinity of CCL, one short-eared owl was observed during the course of field surveys in 2007.

***Burrowing Owl (Athene cunicularia).*** The burrowing owl is a California Species of Special Concern (CDFW, 2011). This species is widespread throughout the western United States, but has declined in this and many other areas due to habitat modification, poisoning of its prey, and introduction of nest predators. This species is diurnal, usually nonmigratory in this portion of its range. It excavates nests in the ground, often enlarging burrows of ground squirrels. It is found in low densities in desert habitats, but can occur in much higher densities near agricultural lands, where rodent and insect prey is more abundant. In 2005, a burrowing owl was observed along the bank of the Santa Clara River, southeast of the Soledad Road crossing (CDFW, 2012a). In 2007, one occurrence from the CNDDB was recorded in Hasley Canyon, about 0.60 miles northwest of Castaic Junction (CDFW, 2012a). Limited suitable habitat is present at CCL; however, neither individuals nor burrows were observed, in spite of ground surveys in open habitats. The species has the potential to occur at CCL.

***Swainson's Hawk (Buteo swainsoni).*** The Swanson's hawk is a California threatened species. It breeds in grasslands with scattered trees and requires adjacent grasslands or grain fields supporting suitable rodent populations for foraging (CDFW, 2015). Historical records from the CNDDB indicate that local occurrences were documented over 100 years ago; however, there are no recent records for this species

in the region, and the species is possibly extirpated from the region. There is, however, limited forage habitat for this species at CCL.

***Coastal Cactus Wren (Campylorhynchus brunneicapillus couesi).*** This species is recognized as a California Species of Special Concern by CDFW (CDFW, 2011). The coastal cactus wren is an obligate, non-migratory resident of the coastal sage scrub plant community (Westman, 1983). It is closely associated with three species of cacti and occurs almost exclusively in thickets of cholla (*Opuntia prolifera*) and prickly pear (*Opuntia littoralis* and *Opuntia oricola*) dominated by stands of coastal sage scrub. This species is found at elevations below 1,480 feet on mesas and lower slopes of the coastal ranges (University of California, Riverside, 2001). No CNDDB records occur for this species in the vicinity of CCL, and none were observed during the course of field surveys. Because of the lack of stands of Opuntia cactus at the landfill, there is no suitable habitat, and the species is unlikely to occur.

***Turkey Vulture (Cathartes aura).*** This species is a Los Angeles County sensitive bird when breeding. The turkey vulture is a carrion eater and forages in a large area, however nesting birds require remote rocky areas where they nest on the ground or in crevices. Most of the remaining breeding sites are on protected National Forest lands in the San Gabriel Mountains (Los Angeles Audubon, 2009). CCL has some rocky outcrops, cliffs, and escarpments that may support nesting sites for this species, and the species has been observed foraging at CCL.

***Northern Harrier (Circus cyaneus).*** This species is recognized as a California Species of Special Concern (CDFW, 2011). The Northern Harrier is frequently found in meadows, grasslands, open rangelands, desert sinks, and fresh and saltwater emergent wetlands. This species prefers to nest in emergent marsh vegetation along rivers and lakes, but may also nest in grassland and agricultural fields. The northern harrier is a regular winter migrant, but only occasionally breeds in Los Angeles County; populations have been greatly reduced due to loss of habitat. No CNDDB records occur for this species in the vicinity of CCL (CDFW, 2012a), and northern harrier was not observed during the course of field surveys. In general, it prefers more extensive grasslands than can be found at the landfill; and no wetlands are present. CCL provides limited foraging or breeding habitat, giving this species potential to occur.

***Western Yellow-Billed Cuckoo (Coccyzus americanus occidentalis).*** The western yellow-billed cuckoo is recognized as a federally threatened by USFWS and is listed as a California Endangered Species by CDFW (CDFW, 2011). In California, the western yellow-billed cuckoo requires dense, wide riparian woodlands with well-developed understories for breeding (Garrett and Dunn, 1981). It is restricted when breeding to river bottoms and other mesic habitats where humidity is high and the dense understory abuts slow-moving watercourses, backwaters, or seeps (Zeiner et al., 1990a). Historical records from the CNDDB indicate that one occurrence was documented in 1979 along the Santa Clara River; however, there are no recent records for this species in the region, and the species is presumed extirpated.

***White-Tailed Kite (Elanus leucurus).*** The white-tailed kite is recognized as a California Fully Protected Species by CDFW (CDFW, 2011). This species nests in stands of oaks, willows, sycamores, and other trees, and forages in low elevation, open grasslands, agricultural areas, and wetlands. This species preys primarily on voles and other small, diurnal mammals, taking small mammal prey approximately 95 percent of the time (Dunk, 1995); as such, its preferred forage habitat is open grasslands. No CNDDB records occur for this species in the vicinity of CCL; however, in 1999, a pair of white-tailed kites successfully nested near the confluence of the Santa Clara River and Castaic Creek (Guthrie, 1999), approximately 1.25 miles east of the landfill. CCL has only limited suitable nesting sites in scattered trees or groves; however, there is good forage habitat on open grasslands at CCL.

***Southwestern Willow Flycatcher (Empidonax traillii extimus).*** The southwestern willow flycatcher is listed as a federally and state endangered species (CDFW, 2011). This species breeds in dense willow and other riparian thickets. The species generally requires extensive stands of willow scrub, with some riparian overstory present. This species arrives on breeding grounds in May and June and departs in August to mid-September. It historically bred in lowland riparian habitat throughout Southern California,

but it has been extirpated from most regions. It still breeds in isolated locations, including riparian woodlands in Kern, Santa Barbara, and San Diego counties, and in locations along the Colorado River where native riparian vegetation is still intact (City of San Jacinto, 2001).

Review of CNDDB records and other documents has indicated that the southwestern willow flycatcher has not been detected within the vicinity of CCL (CDFW, 2012a), and no suitable habitat exists at the landfill. There is suitable habitat downstream along the Santa Clara River and potential for this species exists; however, there are no recent records of occurrence in this location.

***California Horned Lark (Eremophila alpestris actia).*** This species is commonly found on bare ground, disturbed areas, grassland, and open agricultural fields. The California horned lark is on the CDFW watch list (CDFW, 2015). This species is found along the coast of Northern California, in the San Joaquin Valley, in the coast ranges south of San Francisco Bay, and in Southern California west of the deserts. In Southern California, this subspecies is a fairly common breeding resident in grasslands and other dry, open habitats. During the winter season, other subspecies occur in Southern California, and the horned lark (including its subspecies) can be locally common in the region. This species is known to occur in plowed fields and grassland habitat in the vicinity of CCL (Guthrie, 1999). Horned larks of unknown race were detected at the landfill during surveys on open, revegetated landfill in April 2002; the subspecies may breed at CCL.

***Prairie Falcon (Falco mexicanus).*** The prairie falcon on the CDFW watch list (CDFW, 2015). This species forages in open country, including deserts, prairies, agricultural lands, and open playa. Nest sites are generally located in arid regions, usually in a scrape on a sheltered ledge, and in open terrain with canyons, cliffs, escarpments, and rocky outcrops. Preferred nest sites are on higher cliffs and escarpments. No CNDDB records occur for this species at CCL, and prairie falcons were not observed during the course of field surveys; however, they occur commonly in the Los Padres National Forest. Nonetheless, this species has some potential of breeding in the vicinity of CCL due to the occurrence of hardened sandstone escarpments, which may be used for nesting. Suitable forage habitat is present at the landfill on open grasslands or revegetated landfill. There is suitable cliff nesting habitat located in the southern portion, north canyon, and northwestern corner of the property. Prairie falcons were observed foraging in the southern portion of CCL.

***California Condor (Gymnogyps californianus).*** The California condor is listed as federal endangered species under the FESA and state endangered under the CESA (CDFW, 2011). This species occurs in the nearby Los Padres National Forest and forages widely. The California condor is a permanent resident of the semiarid, rugged mountain ranges surrounding the southern San Joaquin Valley, including the Coast Ranges from Santa Clara County south to Los Angeles County, the Transverse Ranges, Tehachapi Mountains, and southern Sierra Nevada (CDFW, 2002b). This species is a strict scavenger of carrion and forages over wide areas of open range. The California condor occurs most commonly between sea level and 9,000 feet and nests at elevations from 2,000 to 6,500 feet (CDFW, 2002b). This species breeds annually and lays one egg between February and May. Nesting generally occurs in caves and sheltered rocky outcrops on the face of steep cliffs, where both parents alternate in incubating and feeding duties.

Captive breeding of the California condor has been in effect for over 2 decades. Since 1992, California condors have been released into the wild (Los Angeles Zoo, 2002a). The Sespe Condor Sanctuary in the Los Padres National Forest appears to be the closest nesting habitat used by California condors (Los Angeles Zoo, 2002b). The California condor may occasionally forage at the landfill (none have been documented), but given its wide-ranging habits, is not anticipated to occur regularly at CCL.

***Yellow-Breasted Chat (Icteria virens).*** This species is recognized as a California Species of Special Concern by CDFW (CDFW, 2011). The yellow-breasted chat is a fairly common summer resident; nesting in low, dense riparian willow thickets with an understory of blackberry and wild grape along the stream banks. CNDDB records indicate that one occurrence was documented in 1979 along the Santa Clara River. This observation occurred within the thick riparian vegetation along the south bank,

approximately 3 to 4 miles east of Piru, in Ventura County. CCL has limited suitable breeding and foraging habitat for yellow-breasted chat; however, there is more extensive breeding habitat along the Santa Clara River downstream of the landfill.

***Loggerhead Shrike (Lanius ludovicianus).*** The loggerhead shrike is recognized as a California Species of Special Concern by CDFW (CDFW, 2011). Loggerhead shrikes are common residents and winter visitors of California foothills and lowlands. This species can be found within open habitat types including sage scrub, non-native grasslands, chaparral, riparian, croplands, and areas characterized by open scattered trees and shrubs; fences, posts, or other potential perches are typically present. The loggerhead shrike forages for large insects over open ground within areas of short vegetation, usually impaling prey on thorns, wire barbs, or sharp twigs to cache for later feeding. A loggerhead shrike was detected in the vicinity of Castaic Creek in 1999, approximately 1 mile northeast of the landfill by a BonTerra Consulting staff biologist (BonTerra Consulting, 1999), breeding birds were detected on CCL during surveys in 1995, and individuals were observed by CH2M HILL biologists in 2007. Suitable habitat is present throughout the landfill, and the species has a moderate to high potential of breeding within the shrubby areas at CCL.

***Coastal California Gnatcatcher (Polioptila californica californica).*** The coastal California gnatcatcher is listed as a federally threatened species under the FESA and as a California Species of Special Concern by CDFW (CDFW, 2011). This species is localized and occurs in arid and coastal regions of Los Angeles, Orange, Riverside, and San Diego counties. The California gnatcatcher occurs in or near sage scrub habitat with characteristic species of California sagebrush, various species of sage, California buckwheat, lemonade berry (*Rhus integrifolia*), and prickly pear (*Optunia* spp.). Gnatcatchers generally tend to prefer open stands of sage scrub, occurring in higher numbers in scrub habitat with an open canopy, and in low numbers or absent in dense, tall scrub with a closed overstory canopy. However, gnatcatchers have also been detected utilizing non-sage scrub habitats for foraging during drought. The nesting season is late February to August.

Sage scrub habitat occurs onsite, exhibiting vegetation densities ranging from open to moderate cover; however, the habitat is not optimal, and the landfill is at the northern limit of the species' range. USFWS protocol surveys for coastal California gnatcatcher were performed on portions of CCL in 2002 and no coastal California gnatcatcher were observed. Records for California gnatcatcher occur in Placerita Canyon about 15 miles southeast of the site (Harris, pers. comm., 2002) and near San Francisquito Canyon Road in Santa Clarita about 6 miles northeast of the site (CDFW, 2015). Also, a single individual was detected at Newhall Valencia Commerce Center in 2007 during surveys there (CDFW, 2015).

***Bank Swallow (Riparia riparia).*** The bank swallow is a California threatened species (CDFW, 2015). This species is uncommon and nests in colonies on vertical banks and cliffs by digging nesting holes in fine textured sandy soils. Bank swallows are found primarily in riparian habitat near streams, rivers, lakes and the ocean. Historical records from the CNDDB indicate that one occurrence was documented over 100 years ago in Simi Valley; however, there are no recent records for this species in the region, and the species is presumed extirpated. Nevertheless, if breeding populations were present in the area, there is suitable foraging habitat on CCL.

***Yellow Warbler (Setophaga petechia).*** This species is recognized as a California Species of Special Concern by CDFW (CDFW, 2011). It breeds in riparian woodlands from coastal and desert lowlands up to 8,000 feet in the Sierra Nevada mountain range. This species commonly utilizes mature riparian woodlands dominated by willow, cottonwood, sycamore, and alder for nesting and foraging. Historical records from the CNDDB indicate that one occurrence was documented in 1979 along the Santa Clara River. This observation occurred within the thick riparian vegetation along the south bank, approximately 3 to 4 miles east of Piru, in Ventura County. No breeding habitat is present at the landfill for this species; however, transient birds may utilize southern mixed chaparral communities at CCL during migration. In addition, suitable breeding habitat occurs along the Santa Clara River downstream.

***Least Bell's Vireo (Vireo bellii pusillus).*** The least Bell's vireo is federally and state-listed endangered species (CDFW, 2011). The least Bell's vireo nests and forages almost exclusively in lowland riparian woodland habitats (Garrett and Dunn, 1981; Franzreb, 1989). It is typically associated with willow, cottonwood, mule fat, or other riparian plant species, and often in areas with high structural diversity, including overstory trees and understory saplings and shrubs. Because willow (*Salix* spp.) and mule fat are typically the most abundant species in vireo habitat, these species appear to be most commonly selected for nesting (Franzreb, 1989). The nesting season for least Bell's vireo is generally between April 10 to July 31, and the entire breeding season lasts up to August 31 (USFWS, 1986 and 1992). The vireo is now a rare and local summer resident of Southern California's lowland riparian woodlands.

Individual least Bell's vireo have been observed over the years in the Santa Clara River, between I-5 and its confluence with Castaic Creek (CDFW and USACE, 1999), and nesting has been documented in dense riparian areas along the Santa Clara River (Guthrie, 1996). USFWS has designated critical habitat for this species, which lies approximately 0.6 miles south of the landfill, along the Santa Clara River.

There is no suitable habitat for this species at CCL. Riparian areas at the landfill consist of scattered to moderately dense mule fat in fairly limited stands, with no adjacent riparian canopy. They are generally open to adjacent upland areas. Cottonwood trees on the site are small and generally scattered, and do not form a continuous canopy. There is suitable habitat along the Santa Clara River, within the area of potential water quality impacts, since drainages on CCL are tributary to the Santa Clara River.

**Amphibians**

***Arroyo Toad (Anaxyrus californicus).*** The arroyo toad is listed as endangered under the FESA and as a Species of Special Concern by CDFW (CDFW, 2011). This species was once found throughout coastal rivers and streams in Southern and Central California, from San Luis Obispo to San Diego counties, as well as in Baja California. It breeds almost exclusively in temporary pools and inhabits seasonally wet drainages with shallow, gravelly pools adjacent to sandy terraces. Arroyo toad adults and subadults are dependent on sandy stream terraces with cottonwood, willow, and sycamore (*Platanus racemosa*) canopy coverage for foraging and burrowing. Upland habitats are also used by arroyo toads during the non-breeding season. These habitats include alluvial scrub, coastal sage scrub, chaparral, grassland, and oak woodland (USFWS, 2000).

Limited seasonal pooling is present in sediment retention basins at CCL, but this was not the historical condition of stream channels on CCL. Breeding populations from Castaic Creek may have historically utilized washes on the eastern portion of the landfill for foraging or over-summering (but not breeding, since pools would have been lacking). With the construction of the United States Postal Service facility southeast of the site, these washes are interrupted and separated by 1,500 to 2,000 feet of underground culvert. This culvert is anticipated to be a movement barrier to arroyo toad, and the species is anticipated to be absent from CCL.

Although occurrence at CCL is not anticipated, there is potential for occurrence of the species downstream on Castaic Creek and the Santa Clara River, within the area of potential effects from CCL.

***Foothill Yellow-Legged Frog (Rana boylii).*** The foothill yellow-legged frog s recognized as a California Species of Special Concern by CDFW (CDFW, 2011). This species is associated with partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats (CDFW, 2012a). A historical record for this species was obtained from 1949 in an area north of Lake Piru (CDFW, 2012a). There is a lack of suitable habitat for this species within the Proposed Project area; therefore, it is unlikely that it will occur at CCL.

***California Red-Legged Frog (Rana draytonii).*** The California red-legged frog is listed as threatened under the FESA and as a California Species of Special Concern by CDFW (CDFW, 2011). This species requires riparian areas with slow-moving water or deep pools that support dense stands of emergent vegetation, such as cattails, at the edge of banks (Jennings, 1988). It inhabits quiet pools of streams,

marshes, and sometimes ponds, with dense shoreline riparian or wetland vegetation. It may range in uplands, or aestivate in dense vegetation, leaf litter, or burrows when not in breeding watercourses. It is adversely affected by bullfrogs.

This species was documented in 2005 in the San Francisquito Creek (CDFW, 2012a). There is no documented occurrence of the California red-legged frog on the CCL site. It is likely that creek developments, including underground culverts, have effectively barred movement of this species at CCL. However, there is limited potential for habitat along reaches of the Santa Clara River downstream of the landfill property.

***Western Spadefoot (Spea hammondii).*** The western spadefoot is recognized as a California Species of Special Concern by CDFW (CDFW, 2011). This species occurs primarily in vernal pools for breeding and in grassland habitats in underground burrows. It can also occur in valley-foothill hardwood woodlands, coastal sage scrub, and chaparral. Rain pools must lack fish, bullfrogs, and crayfish in order for western spadefoot to successfully reproduce and metamorphose (Jennings and Hayes, 1994). Historical records from the CNDDB indicate that multiple occurrences have been documented in the vicinity of CCL between 2001 and 2004. In 2004, over 200 western spadefoot tadpoles were observed approximately 1 mile west of the Castaic Junction, and over 100 juveniles were recorded in the San Francisquito Creek area. The habitat utilized by the spadefoot consisted of rainfall-filled depressions and/or vernal pools. The East Canyon and detention basin at CCL may hold water long enough to support breeding amphibians. This species has been observed onsite within the East Canyon detention basin.

***Coast Range Newt (Taricha torosa torosa).*** The coast range newt is recognized as a California Species of Special Concern by CDFW in areas south of Monterey (CDFW, 2011). This species breeds in slow moving streams and ponds with adjacent, intact terrestrial vegetation, along the western coast of California from Humboldt County to the Mexican border. The coast range newt typically feed on earthworms, insects, snails, and other small invertebrates (Stebbins, 1972). No CNDDB records occur for this species within 10 miles of CCL (CDFW, 2012a). Coast range newt is unlikely to occur at CCL due to lack of suitable habitat, but may occur downstream along the Santa Clara River.

**Reptiles**

***Silvery Legless Lizard (Anniella pulchra pulchra).*** The silvery legless lizard (also known as the California legless lizard) is recognized as a California Species of Special Concern by CDFW (CDFW, 2011). This species commonly occurs in moist, sandy, and loose loamy soils under sparse vegetation of beaches, chaparral, pine-oak woodland, sycamores, cottonwoods, or oaks that grow on stream terraces, including dry washes (Zeiner et al., 1990b). They are known to prey upon insect larvae, termites, small adult insects, beetles, spiders, and other invertebrates (University of California, Riverside, 2001). This species has been documented within Plum Creek Canyon, but that site has been extirpated and individuals were relocated (CDFW, 2012a). Some habitat for this species occurs at CCL, and it is considered to have a moderate potential to occur.

***Western Pond Turtle (Emys marmorata).*** The southwestern pond turtle is recognized as a California Species of Special Concern by CDFW (CDFW, 2011). This species breeds and forages in perennial watercourses with ample pool habitats and basking sites. It generally prefers watercourses with pools 2 or more feet deep. It lays eggs in upland areas adjacent to watercourses and spends summer aestivation periods in dense vegetation, shallow pits, or leaf litter in upland areas. Historical records from the CNDDB indicate that three occurrences were documented in 2000 within the open channel of the Santa Clara River (CDFW, 2012a). The most recent observation occurred in the vicinity of Las Brisas Bridge in Ventura County (CDFW, 2012a). This species would not occur at CCL due to lack of aquatic habitat, but does occur downstream in the Santa Clara River corridor.

***San Diego Horned Lizard/Coast Horned Lizard (Phrynosoma blainvillii).*** The San Diego horned lizard is a California Species of Special Concern (CDFW, 2011). This species is restricted to southwest California

and northwest Baja California, where it occupies coastal sage scrub and chaparral and other open habitats, including sandy washes. The San Diego horned lizard can be found in a variety of habitats from sage scrub to coniferous and broadleaf woodlands; however, it prefers areas with friable, rocky, or shallow sandy soils with open scrub for sunning and burrowing. Its preferred food is harvester ants. Historical records from the CNDDB indicate that one occurrence was documented within 5 miles of CCL in 1934, and recent records of this species have been documented in the Santa Susana Mountains and Tapia Canyon (CDFW, 2012a). This detection occurred south of Soledad Canyon in Saugus. Focused surveys were conducted in suitable habitat for San Diego horned lizards. No individuals or signs were observed; however, suitable habitat occurs at the landfill, including sandy wash areas with populations of harvester ants. Therefore, it is anticipated that the San Diego horned lizard has a moderate to high potential of occurring at CCL.

***Coast Patch-Nosed Snake (Salvadora hexalepis virgultea).*** The coast patch-nosed snake is designated as a California Species of Special Concern by CDFW (CDFW, 2015). This species requires small mammal burrows for refuge and overwintering. The coast patch-nosed snake is found in brushy or shrubby vegetation in coastal southern California. CNDDB historical records indicate an individual was observed in 2008 approximately 10 miles west of CCL. It is anticipated that the coast patch-nosed snake has a moderate potential of occurring at CCL.

***Two-Striped Garter Snake (Thamnophis hammondii).*** The two-striped garter snake is recognized as a California Species of Special Concern and protected by CDFW (CDFW, 2011). This species is highly aquatic, found in or near permanent and ephemeral fresh water, often in streams with rocky beds and dense riparian vegetation. It is sensitive to the presence of exotic species, including bullfrogs. CNDDB records indicate that one occurrence was documented within 5 miles of CCL in 2000. This detection occurred within the open channel of the Santa Clara River, between Salt Creek and Summer Four Crossings in nearby Ventura County. No two-striped garter snakes were detected during the course of field surveys. This species would not occur at CCL due to lack of aquatic habitat, but does occur within the area of potential impact downstream.

**Mammals**

***Pallid Bat (Antrozous pallidus).*** The pallid bat is recognized as a California Species of Special Concern by CDFW and a WBWG species of high priority (CDFW, 2011). This species is a yearlong resident throughout lower elevations of California, utilizing open, dry habitats from grasslands, open scrub, shrublands, woodlands, and forests. It typically forages close to the ground and may take prey on the ground. Day roosts are typically in caves, crevices, mines, buildings, and hollow trees. The species is social, often roosting in groups of 20 or more, ranging to well over 100, in many cases with other species; however, it may also be found individually (Zeiner et al., 1990c). Maternity colonies form in early April, and may contain from 12 to 100 individuals. Young are weaned in 7 weeks, and are observed flying in July and August. There is one record for this species in CNDDB from 1938, within 1 mile of CCL; and given the wide range of this species, and preference for open, dry habitats, there is moderate potential for this species to occur within the site.

***Mexican Long-Tongued Bat (Choeronycteris mexicana).*** The Mexican long-tongued bat is recognized as a California Species of Special Concern by CDFW and a WBWG species of high priority. The Mexican long-tongued bat was formerly known only from San Diego County, but more recent records occur from Los Angeles and Ventura counties (Constantine, 1998). This species roosts in caves, mines, and buildings; and prefers dimly lit sites. The Mexican long-tongued bat primarily feeds on nectar, pollen, and occasionally fruit while hovering. Pregnant females have been found from February through September. Most births occur in June and early July; and this species is wary and very sensitive to roost sites disturbances. Low potential for occurrence for this species on the site is possible. However, no records for this species are present in CNDDB in the vicinity of CCL and it has spotty occurrence potential north of San Diego County.

***Townsend's Western Big-Eared Bat (Corynorhinus townsendii townsendii).*** The Townsend's western big-eared bat is recognized as a California Species of Special Concern by CDFW and a WBWG species of high priority (CDFW, 2011). It has also been proposed as California threatened by CDFW and is now a candidate species. This species is a yearlong resident throughout California, but is generally quite rare, with numbers having declined steeply. It utilizes open, mesic habitats, foraging for moths, beetles, and other insects by echo-location or gleaning from foliage. It roosts in caves, mines, tunnels, and dark building caverns, generally preferring larger enclosures. Maternity colonies are typically fewer than 100 bats and are sensitive to disturbance. Maternity colonies form in April, with births in May or June; colonies may begin to break up by August. Limited records of this species are present in CNDDB for California, consisting of a handful of records in Central and Northern California, although it is commonly reported as occurring throughout California. Recent records occur from Santa Cruz Island (Constantine, 1998). CCL may be within range of the species and occurrence potential is possible, but unlikely, although there are rock faces and crevices throughout the site that may support migratory bat roosts and potential breeding. This species has a strong preference for larger roosts in caves, mines, or abandoned buildings, which are lacking within CCL.

***Spotted Bat (Euderma maculatum).*** The spotted bat is recognized as a California Species of Special Concern by CDFW and a WBWG species of high priority (CDFW, 2011). The spotted bat is rare, ranging through Central and Southern California desert, scrub, and woodland habitats. It roosts in high cliff faces and rock crevices. It feeds almost exclusively on medium-sized moths, beetles, and caddis flies. Historical records from the CNDDB indicate that one deceased individual was found in 1890 within 5 miles of CCL. Potential for occurrence for this species on the site is possible. Their preferred roosts are high cliff faces, and there are steep-sided canyon walls in the northern and southern portions of the site.

***Western Mastiff Bat (Eumops perotis californicus).*** The western mastiff bat is recognized as a California Species of Special Concern by CDFW and a WBWG species of high priority (CDFW, 2011). This species is an uncommon resident of interior and coastal regions of Central and Southern California, occurring in a variety of open, arid habitats. The species roosts in cliff faces, high buildings, tees, and tunnels; nursery roosts are described as tight rock crevices at least 3 feet deep and 2 inches wide. It catches prey in flight, foraging over various habitats. Parturition dates vary more for this species than other species, and may occur from April through August or September. Constantine (1998) reports numerous records of this species from Los Angeles County, including records from the general vicinity of CCL. Garrett (1993) also reports museum records from Los Angeles County. Given the broad habitat usage of this species and frequency of occurrence records in the region, there is a high likelihood of occurrence at CCL.

***San Diego Black-Tailed Jackrabbit (Lepus californicus bennettii).*** The San Diego black-tailed jackrabbit is recognized as a California Species of Special Concern by CDFW (CDFW, 2011). This species ranges from coastal Southern California, from Santa Barbara County into northwest Baja California. It is commonly found in coastal sage brush and Riversidean sage scrub habitats with intermediate canopy stages, open spaces, and herbaceous edges. No CNDDB records occur for this species within 5 miles of CCL. The San Diego black-tailed jackrabbit was not observed at CCL during field surveys; however, suitable habitat does exist, and there is potential for occurrence within the site.

***California Leaf-Nosed Bat (Macrotus californicus).*** The California leaf-nosed bat is recognized as a California Species of Special Concern by CDFW and a WBWG species of high priority (CDFW, 2011). This species ranges from Riverside, Imperial, San Diego, and San Bernardino counties south to the Mexican border, in desert riparian, desert wash, desert scrub, desert succulent scrub, alkali desert scrub, and other arid habitats. This species commonly roosts in mines and caves, generally far from human habitation. Historical records for this species occur for Bell Canyon, approximately 15 miles south of the landfill (Howell, 1920; Constantine, 1998), and in a small cave approximately 11 miles south-southwest of the landfill (Constantine, 1998). No records for this species are present in CNDDB for Los Angeles County; however, bat records in CNDDB are notoriously incomplete. Given the presence of this species

in the region historically, it has potential to occur at CCL in suitable habitat, which may include small cave roost sites associated with outcrops in the area.

***Long-Eared Myotis (Myotis evotis).*** The long-eared myotis is recognized as a WBWG species of moderate priority (CDFW, 2011). This species is a yearlong resident throughout California, absent only from the Central Valley and Mojave Deserts; it seems to prefer higher elevation coniferous forests. It preys on flying insects and forages on the ground or in vegetation. The species roosts in trees, rock crevices, buildings, and caves, as well as under tree bark. Nursery colonies may number 12 to 30 individuals. Young are born in May to July, with a peak in June. Young are flying by early August. Museum records for this species have been documented for Los Angeles County in the Pasadena area, approximately 30 miles southwest of the landfill (Garrett, 1993). CNDDB records for this species are limited to a handful of records in Central and Northern California. CCL appears to provide moderate roosting habitat for the species, which may utilize crevices or small caves in rocky outcrops and cliffs, and the potential for occurrence within the site is moderate to high.

***Cave Myotis (Myotis velifer).*** The cave myotis is recognized as a California Species of Special Concern by CDFW and a WBWG species of moderate priority (CDFW, 2011). This species is restricted in California, generally to lowlands of Colorado River and adjacent mountain ranges, in San Bernardino, Riverside, and Imperial counties. It is found in desert scrub, desert succulent shrub, desert wash, and desert riparian. This species is a colonial, cave-dwelling bat, but may also roost in rock crevices or old buildings, under bridges, and in abandoned cliff swallow nests. Three detections of this species were reported for Los Angeles County between 1992 and 1997, one of which was located within the general vicinity of CCL in Valencia in 1994 (Constantine, 1998). Potential for occurrence for this species on the site is low but possible. However, no records for this species are present in CNDDB in the vicinity of CCL and this species exhibits spotty occurrence patterns west of Riverside County.

***Long-Legged Myotis (Myotis volans).*** The long-legged myotis is recognized as a WBWG species of high priority (CDFW, 2011). It is a yearlong resident throughout California, absent only from the Central Valley and Mojave Deserts. It is most common in forested areas above 4,000 feet, but also found in coastal scrub, chaparral, and woodlands. It roosts in rock crevices, buildings, and under tree bark. It preys on flying insects, and may forage over water, scrub, or woodland habitats. Young are born in June and July, may begin flying in mid-July, and are weaned by September. Museum records for this species have been documented for the Pasadena area, approximately 35 miles southeast of the landfill (Garrett, 1993). There are no CNDDB records in the general vicinity of CCL for this species. CCL appears to provide moderate roosting habitat for the species, which may utilize crevices or small caves in rocky outcrops and cliffs, and the potential for this species to occur within the site is moderate to high.

***Yuma Myotis (Myotis yumanensis).*** The Yuma myotis is designated a WBWG species of low to moderate priority (CDFW, 2011). This species is a yearlong resident and generally common throughout California. It roosts in trees, rock crevices, buildings, caves, mines, and abandoned swallow nests under bridges, as well as under tree bark and under bridges. It preys on flying insects, generally foraging over water sources. Nursery colonies may number several thousand individuals. Young are born in May to mid-June, with a peak in early June. Limited records of this species are present in CNDDB for California, consisting of a handful of records in Central and Northern California. CCL appears to provide moderate roosting habitat for the species, which may utilize crevices or small caves in rocky outcrops and cliffs, and the potential for occurrence within the site is moderate.

***San Diego Desert Woodrat (Neotoma lepida intermedia).*** The San Diego desert woodrat is recognized as a California Species of Special Concern by CDFW (CDFW, 2011). This species occurs within arid regions up to 8,500 feet above msl from San Luis Obispo to northwest Baja California. The San Diego desert woodrat occupies moderate to dense canopy chaparral, Riversidean sage scrub, woodlands, rocky outcrops, and rocky slopes. Desert woodrats are primarily herbivorous, and their diet may include leaves, seeds, berries, parts of flowers, and yucca shoots (Cameron and Rainey, 1972). No CNDDB

records occur for this species within 5 miles of CCL. Woodrat nests were identified at CCL during field surveys; however, it could not be determined if they belonged to this subspecies or to the close relative, the dusky-footed woodrat (*N. fuscipes*). Potential exists for the species' occurrence at CCL in chaparral habitat, particularly where rocky outcrops are present.

***Pocketed Free-Tailed Bat (Nyctinomops femorosaccus).*** The pocketed free-tailed bat is designated a California Species of Special Concern by CDFW and a WBWG species of moderate priority (CDFW, 2011). It is a common resident of arid regions of Southern California, occurring in desert scrub, riparian, and other habitats. It was formerly considered limited to Imperial and San Diego counties. Pocketed free-tailed bats roost in small groups in rock crevices on cliff faces. It catches prey in flight, foraging over ponds, streams, or open habitat. Young are born in June and July, and weaned by late August for this species. Constantine (1998) reports numerous records of this species in Los Angeles County, taken from data collected from 1954 to the late 1990s. The closest observation of this species by Constantine occurred in 1994, approximately 36 miles south-southwest of CCL within the city of Inglewood; this represents a known range extension, and is among the farthest north records of the species. Potential for occurrence for this species on the site is possible but very limited.

***Big Free-Tailed Bat (Nyctinomops macrotis).*** The big free-tailed bat is recognized as a California Species of Special Concern by CDFW and a WBWG species of moderate to high priority (CDFW, 2011). This species is rare in Southern California, with previous records restricted to urban areas in San Diego County. The big free-tailed bat is found in open and urban habitats, preferring rugged, rocky terrain. It forages in the air over water sources for large moths and other flying insects. This species roosts in rocky crevices high on cliff faces. Young are born into small nursery colonies in June and July and capable of flight in August to mid-September. Recent records identify a range extension into Los Angeles and Orange counties, with numerous records in the lower Los Angeles Basin (Constantine, 1998). The nearest detection is in Burbank in 1987, approximately 25 miles south-southwest of the landfill (Constantine, 1998). Potential for occurrence for this species on the site is possible but limited; there is a lack of records as far north as CCL.

***American Badger (Taxidea taxus).*** The American badger is designated a California Species of Special Concern by CDFW. This species prefers drier open stages of shrub, forest, and herbaceous habitats, with friable soils (CDFW, 2015). American badgers dig burrows and prey on burrowing rodents. CNDDB historical records indicate the nearest occurrence is over 10 miles northwest of CCL (CDFW, 2015). Limited suitable habitat is present at CCL; however, neither individuals nor burrows were observed, in spite of ground surveys in open habitats. The species has a potential to occur at CCL.

**Fish**

***Santa Ana Sucker (Catostomus santaanae).*** The Santa Ana sucker is listed as a federally threatened species under the FESA and a California Species of Special Concern by CDFW (CDFW, 2011). The historical range of the Santa Ana sucker includes the Los Angeles, San Gabriel, and Santa Ana River drainage systems in Southern California (Smith, 1966). An introduced population also occurs in the Santa Clara River drainage system (Moyle, 1976). The Santa Ana sucker generally occurs in shallow streams less than 20 feet in width with preferred substrates characterized by sand-rubble-boulder with cool, clear water and a presence of filamentous algae. It appears to be most abundant where the water is cool, clean, and clear, although the species can tolerate seasonally turbid water (University of California Riverside, 2001).

CNDDB records indicate that multiple occurrences were documented on the Santa Clara River in the vicinity of CCL between 1975 and 2004. In 2004, an individual was observed within the Santa Clara River drainage from San Francisquito Canyon to the vicinity of Santa Paula. In 2007, Santa Ana suckers were common observations in the Santa Clara River, from Santa Paula to Valencia, and 39 dead individuals were observed in October 2007. No critical habitat has been designated for the Santa Ana sucker.

This species would not occur at CCL due to lack of aquatic habitat, but does occur downstream in the Santa Clara River.

***Unarmored Threespine Stickleback (Gasterosteus aculeatus williamsoni).*** The unarmored threespine stickleback is listed federally and state endangered and is Fully Protected by CDFW (CDFW, 2011). This species once occurred throughout the Los Angeles, San Gabriel, and Santa Ana River systems (Culver and Hubbs, 1917). By 1985, the only known population was restricted to a small portion of the upper Santa Clara River drainage in Los Angeles County and the San Antonio Creek drainage in Santa Barbara County (Center for Biological Diversity, 2002). The unarmored threespine stickleback is a small, scaleless, freshwater fish that requires slow-moving and clean, clear waters of streams and rivers. This species forages on small aquatic organisms, primarily insects, crustaceans, and algae. Breeding occurs in late spring and early summer with the male building a nest with grass and sticks on the bottom of the creek, concealed in holes or debris.

CNDDB records indicate that multiple occurrences were documented between 1994 and 2000 in the Santa Clara River, approximately 3 miles east of Piru, upstream to the McBean Bridge crossing in Valencia. In 2000, a total of 42 individuals were recorded in the Santa Clara River. The most recent occurrence was in 2005, when one individual was observed in Castaic Creek, 0.80 miles north of the junction of SR-126 and I-5. The unarmored threespine stickleback is known to be a year-round resident of the Santa Clara River from the confluence of the Santa Clara River and Castaic Creek to I-5 (San Marino Environmental Associates, 1995). SEA #23 has been developed along the Santa Clara River by the County of Los Angeles to protect unarmored threespine stickleback. The Santa Clara River is also designated as “unarmored threespine stickleback stream” by CNDDB. This species would not occur at CCL due to lack of aquatic habitat, but does occur downstream in the Santa Clara River.

***Arroyo Chub (Gila orcuttii).*** The arroyo chub is recognized as a California Species of Special Concern by CDFW (CDFW, 2011). It prefers slow-moving or backwater sections of warm to cool streams with substrates of sand or mud with a typical stream depth of greater than 40 centimeters (Moyle, 1976). This species is common at various locations throughout Southern California (University of California, Riverside, 2001; Swift et al., 1993). CNDDB records indicate that multiple occurrences were documented between 1993 and 2005 in the Santa Clara River, approximately 3 miles east of Piru, from the Las Brisas Bridge to Old Road Bridge with the majority of the fish observed in the lower one-third of the area (CDFW, 2010). This species would not occur at CCL due to lack of aquatic habitat, but apparently occurs downstream in the Santa Clara River.

***Southern Steelhead Trout (Oncorhynchus mykiss irideus).*** The southern steelhead trout is listed as a federally endangered species under the FESA and a California Species of Special Concern by CDFW (CDFW, 2011). The historical range of this species in North America includes Pacific Coast streams from Alaska, south to northern Baja California (Bernstein and Montgomery, 2008). In 2005, the Santa Clara Calleguas Hydrological Unit was designated as critical habitat, as far east as Piru Creek (78 *Federal Register* 2725). The southern steelhead trout has been documented within the Fillmore quadrant (CDFW, 2010). This species would not occur at CCL due to lack of aquatic habitat, but does occur downstream in the Santa Clara River.

**Invertebrates**

***Monarch Butterfly (Danaus plexippus).*** Overwintering populations of monarch butterflies are designated as sensitive by the United States Forest Service (CDFW, 2015). Winter roost sites extend along the coast from northern Mendocino to Baja California. Roost are located in wind-protected tree groves with nectar and water sources close by. Suitable tree groves consist of eucalyptus, Monterey pine, or cypress. A monarch butterfly roost of large eucalyptus trees, thought to be an autumnal site, was observed in 1990 in a greenbelt portion of a residential area in Bee Canyon, north of Granada Hills. Overwintering monarch butterflies are unlikely to occur at CCL due to the lack of suitable dense tree groves, but may

use the site for migration. There is potential for CCL to support milkweeds (*Asclepias* spp.), which are host plants for monarch butterflies.

***San Emigdio Blue Butterfly (Plebulina [Plebeius] emigdionis).*** This butterfly is of local conservation concern. Its range extends throughout Southern California from Inyo County to northern Los Angeles County, generally occurring in shadscale scrub in desert canyons and washes. The larval hostplant is shadscale (*Atriplex canescens*). There are no known records in the vicinity of CCL; nearby records occur in Bouquet and Mint Canyons (United States Geological Survey, 2002). Shadscale scrub has been observed at CCL, although it is generally outside its desert canyon range; therefore the species has a low potential to occur.

***Riverside Fairy Shrimp (Streptocephalus woottoni).*** Riverside fairy shrimp inhabit pools in seasonal grasslands and coastal sage scrub. The pools this species inhabits are seasonally astatic and fill with winter/spring rains. Riverside fairy shrimp are short lived, maturing in 48 to 56 days and living up to 120 days (Eriksen and Belk, 1999). The closest known occurrence is over 16 miles southwest of CCL. This species would not occur at CCL due to lack of suitable seasonal aquatic habitat.

### 8.5.5 Oak Trees

A field study evaluation of Los Angeles County ordinance-sized oak trees was conducted by SB Horticulture in early April 2012 to ascertain baseline data in regard to native oak tree resources in the Proposed Project area (SB Horticulture, 2014). The Oak Tree Report is included in Appendix E2, and results of the survey are summarized here:

- Two oaks, one valley oak and one coast live oak, are native trees growing adjacent to an abandoned field previously used for agriculture purposes.
- Two coast live oaks are landscape trees growing within landscaped areas of the existing landfill facility.
- All four trees subject to the Los Angeles County Oak Tree Ordinance will be removed for the Proposed Project.

### 8.5.6 Wildlife Corridors

Wildlife movement corridors maintain habitat connectivity across natural community boundaries. Corridors may support daily movement from one foraging habitat to another, to watering holes, denning or roosting sites, or seasonal movements including large-scale migrations. Wildlife corridors may be represented by linear habitats such as aquatic streams or rivers, riparian woodlands along stream courses, or continuous or interconnected patches of natural habitat surrounded by other types of habitat (such as woodland habitat on hillsides surrounded by lowland grasslands) or natural habitat surrounded by developed land (such as chaparral surrounded by urban or agricultural land). Movement corridors may also be represented by ridgelines, valleys, or other less tangible features where wildlife congregate during daily or seasonal movements.

No long-term quantitative study of wildlife movement has been done at CCL. Generally, such studies are intensive and may require many years of observations. Evidence of consistent wildlife movement along the ridgeline north of the active landfill area was observed during June 2010 field surveys. Evidence included wildlife trails and regular observations of scat (e.g., coyote, gray fox).

The South Coast Wildlands Missing Linkage Project (South Coast Wildlands, 2008) defined the Santa Monica - Sierra Madre Connection, a north-south linkage from Santa Monica Mountains along the coast to the Santa Susana Mountains and the Sierra Madre Ranges of Los Padres National Forest. It is one of the few coastal to inland connections remaining in the South Coast Ecoregion. The mapped border of this linkage is about 2 miles to the west of CCL near the Ventura County line. Within this

linkage, U.S. Route 101 and State Routes (SR) 23, 118, and 126 are the most obvious barriers between core reserves in the Santa Monica and Sierra Madre mountains, while I-5 and SR-14 impede movement to the San Gabriel Mountains to the east. The South Coast Wildlands Missing Linkage Project (South Coast Wildlands, 2008) defined the Sierra Madre – Castaic Connection, an east-west linkage. The planning area for the Sierra Madre – Castaic Connection includes the Sierra Madre Mountains of Los Padres National Forest and the Castaic Ranges of the Angeles National Forest. The nearest mapped border of this linkage is about 3.5 miles to the north of CCL.

Although CCL is outside the mapped boundary of these corridors, movement through the CCL could contribute or be a part of the corridors. Whether this occurs, or the extent CCL could contribute to the corridors, is unknown. Two additional wildlife movement corridors are known within the vicinity of CCL, and both are important as coastal to inland connective areas, as well as supporting local riparian and aquatic species movement. A principle one is the Santa Clara River corridor, with the active watercourse 0.3 miles distant from the southern boundary of CCL. The second is the major connective tributary confluence with Castaic Creek and the Castaic Creek corridor, about 0.3 miles distant from southeast boundary of CCL.

# 8.6 Potential Impacts

## 8.6.1 Impacts Definition

Direct impacts occur when biological resources are altered, disturbed, destroyed, or removed during the course of construction, grading, and filling of habitats. Direct impacts can include the loss of individuals or populations from habitat clearing or construction-related mortality; loss of foraging, nesting or burrowing habitat for wildlife species; or alteration of substrates, which prevents reestablishment of native vegetation.

Indirect impacts occur when project-related activities affect biological resources in a less overt manner. Such impacts include elevated noise and light levels, erosion of hillsides and/or sedimentation and siltation of aquatic habitats, degrading changes to water quality, and production of fugitive dust emissions.

Both direct and indirect impacts can be classified as either temporary or permanent, depending on the duration of the impacts. Temporary impacts are impacts considered to have reversible effects on biological resources. Examples of temporary impacts include noise and light generated from construction activities, production of fugitive dust emissions during construction, and construction traffic. Permanent impacts are those impacts resulting in the irreversible removal, disturbance, or destruction of biological resources. The Proposed Project would result in both direct and indirect impacts to biological resources that might be either permanent or temporary in nature.

In determining if these impacts are significant to plant and wildlife species, the actual and potential occurrence of the species at CCL is correlated with the significance criteria defined below.

## 8.6.2 Criteria for Determining Significance/Standards of Significance

The following summarizes thresholds of significance for impacts to biological resources, based on Appendix G (Environmental Checklist Form) of the *CEQA Guidelines* Section 15000 et seq.; these thresholds are used to determine the level of significance for this study and analysis. Levels of significance or effect include the following: (1) no impact or effect; (2) adverse impact but less than significant; (3) beneficial impact; (4) significant adverse impact but with mitigation reduced to less than significant; (5) unavoidable significant adverse impact; and (6) cumulative impact. A significant adverse impact is defined as one or more of the following:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by CDFW or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pools, and coastal areas) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP.

## 8.6.3 Proposed Project Construction Impacts

Potential impacts to biological resources as a result of the Proposed Project are described below.

### 8.6.3.1 Potential Impacts to Vegetation Communities

**Potential Impacts**

The Proposed Project would result in direct impacts to approximately 171.75 acres of natural vegetation alliances, 138.85 acres of non-native vegetation alliances, and 68.92 acres of previously revegetated alliances. Table 8-1 provides a summary of vegetation alliances or land cover types present at CCL, and potential impacts to these habitats over the life of the Proposed Project.

Native vegetation communities have a relatively high biological value, and along with naturalized and/or non-native habitats on the site, provide nesting, foraging, roosting, and denning opportunities for many species of wildlife. The native vegetation communities are continuous with extensive areas of these communities throughout the region. The impact of loss of these habitats is anticipated to be significant requiring mitigation. Mitigation would be implemented with BR-1, which would require that landfill areas would be revegetated with vegetation communities when retired from use comparable to the vegetation communities impacted, including revegetation of native forest or shrubland with native forest or shrubland, respectively, and revegetation of semi-natural grassland with comparable grassland. With mitigation, potential impacts from loss of vegetation communities would be less than significant.

Additional impacts may occur during construction or operation of the landfill on areas of adjacent habitat, including unauthorized vehicle travel or material storage outside of construction limits. This has the potential to result in significant impacts to vegetation communities. To mitigate for this, BR-2 would be implemented, ensuring that construction activities would be confined to authorized areas. With mitigation, this impact would be less than significant.

Ground-disturbing activities may also promote the establishment of invasive plant species and noxious weeds and potentially degrade surrounding communities, including introduction of weed seed to the site from construction equipment or personnel. If invasive weeds become established on the site, they could provide a reservoir for invasive weed seed to surrounding intact habitats. In addition, small, existing tamarisk (*Tamarix* spp.) stands on the site could spread as well as contribute to spread of tamarisk to downstream waterways, also a significant impact.

To minimize potential for introduction of invasive plant species during construction, the Proposed Project will include contract requirements to ensure vehicles are clean and free of soil or invasive weed seeds and other plant parts prior to entering the site. Construction contractors hired by CCL will have to certify in writing that their equipment meets these requirements. Invasive species may include any species on Los Angeles County's invasive plant list (http://planning.lacounty.gov/assets/upl/project/green invasives2011.pdf) or any species listed as moderate or high on the California Invasive Plant Council (Cal-IPC) list (http://www.cal-ipc.org/ip/inventory/).

To mitigate for impacts from invasive weeds, BR-3 would be implemented requiring inspection and cleaning of equipment prior to site entry, and within 1 year of Project approval invasive tamarisk located onsite will be identified and removed completely and the area will be re-planted with appropriate riparian vegetation. With mitigation, impacts from invasive weeds are expected to be less than significant.

Impacts to intact vegetation communities could result from fires started during or from construction activities on the site. This could result in significant impacts to adjacent habitats. To mitigate for this, BR-4 would be implemented, reducing the risk of construction-related fires. With mitigation, this impact would be less than significant.

**Mitigation Measures**

**BR-1** The applicant shall develop a Closure Revegetation Plan for the Project in consultation with LADRP, consistent with the Draft Revegetation, Rare Plant Relocation, and Oak Tree Performance Criteria provided in Appendix E3 of this Partially Recirculated Draft EIR. The Plan would require approval prior to authorization of land disturbance under the Proposed Project. The Plan shall require that CCL be revegetated to offset permanent impacts to native and naturalized habitats, in accordance with the following criteria:

- Native vegetation shall be used under the direction of specialists in restoration plantings. Native revegetation shall achieve a 1:1 ratio of impacted native, revegetated, and semi-natural habitat to revegetated mitigation land. Non-native grassland habitats would be initially seeded with native grassland species.
- Revegetation types, monitoring requirements, and success criteria including milestones, along with proposed remedial actions should vegetation alliances not achieve success criteria shall be included in the Closure Revegetation Plan, in accordance with the preliminary approach outlined in the Draft Revegetation, Rare Plant Relocation, and Oak Tree Performance Criteria provided in Appendix E3 of this Partially Recirculated Draft EIR.
- In order to replicate and potentially expand the available amount of native shrubland on the site, the Closure Revegetation Plan shall include a final soil cover of approximately 5 feet, or alternatively a depth approved by regulatory agencies and suitable to allow for proper root growth.
- The Closure Revegetation Plan shall be developed and implemented by an ecological restoration specialist familiar with restoration of native and naturalized Southern California plant alliances, and shall specify that revegetation will be done with locally native plants, and that revegetation will not include plant species on Los Angeles County's list of invasive species nor invasive species on the lists of the California Invasive Plant Council (Cal-IPC) nor invasive species listed by the CNPS.
- If success criteria for vegetation alliances are not met, remedial actions will be performed onsite consistent with the Closure Revegetation Plan.

- If success criteria for native shrub or forest alliances are not met even after remedial actions are performed, offsite mitigation land shall be purchased to offset the loss of the portion of the alliance vegetation that does not meet the success criteria at a 1:1 ratio (impacted:mitigation land). The acreage acquired shall, if feasible, be generally local to the site or the general site area, ideally situated adjacent to or in the general proximity of the Santa Clara River, Hasley Canyon, or Angeles National Forest, and will connect with other protected open space. First priority would be given to lands that contribute to connecting the wildlife movement between the Santa Clara River through CCL to Hasley Canyon and to the Angeles National Forest.
- Any purchased mitigation land shall be protected by fee simple deed to a conservation organization experienced in management of natural lands.
- Additional mitigation for vegetation communities is included in Mitigation Measure BR-5 (vegetation associated with jurisdictional waters), Mitigation Measure BR-9 (rare plant communities), and Mitigation Measure BR-15 (oaks and oak woodlands). Mitigation ratios for replacement of these vegetation communities may be greater than the 1:1 ratio specified above, in coordination with CDFW for jurisdictional waters and rare plant communities and in coordination with LADRP for compliance with the County Oak Woodland Conservation and Management Plan.

**BR-2** The construction area boundaries shall be delineated clearly. No construction activities, vehicular access, equipment storage, stockpiling, or significant human intrusion shall occur outside of the designated construction area. In addition, CCL ingress and egress routes shall be marked, and vehicle traffic outside these routes shall be prohibited. Vehicular traffic shall adhere to a speed limit of 15 miles per hour on non-public access roads during construction to ensure avoidance of impacts to sensitive biological resources.

**BR-3** Soil or invasive plant seed transfer from clothing, shoes, or equipment shall be minimized through cleaning and monitoring of personnel or equipment transfers between sites, or prior to initial entry at CCL. Contract requirements to ensure vehicles are pressure washed and/or clean and free of soil or invasive weed seeds and other plant parts prior to entering the site will be implemented. Contracts will specify that pressure-washing of construction vehicles is to take place immediately before bringing the vehicle to CCL. The contractor will provide written documentation that the vehicles have been pressure washed or otherwise free of plant material that is checked by both CCL management and the biological monitor, who will jointly assure that this mitigation is implemented. The biological monitoring report will include a record of compliance with this measure.

Within 1 year of project approval invasive tamarisk (*Tamarix* spp.) located onsite will be identified and removed completely. All parts of removed tamarisk will be disposed of in a landfill.

**BR-4** On-road vehicles on the construction sites will be equipped with spark arresters on exhaust equipment. Camp fires, trash-burning fires, and warming fires shall be prohibited in the construction area.

#### 8.6.3.2 Potential Impacts to CDFW and USACE Jurisdictional Areas

**Potential Impacts**

USACE and CDFW jurisdictional areas (waters of the United States and stream bed and bank, respectively) could potentially be permanently impacted from grading and filling activities. Prior to initiation of permitting, a delineation report would be prepared to identify the presence of jurisdictional areas. In the event that any jurisdictional areas are confirmed at CCL, potential losses would include riparian vegetation associated with seasonal washes, including mule fat scrub, Mexican elderberry,

and potentially scattered Fremont cottonwood. The permanent loss of CDFW and USACE jurisdictional areas would be considered a significant impact. Impacts would be quantified during the permitting process and mitigation for potential impacts would be required as a part of the permitting process, as indicated in BR-5 below.

Potential indirect impacts to onsite jurisdictional waterways not otherwise directly impacted by grading and filling activities may occur during construction or operation of the Proposed Project. Impacts from sediment, fuel discharges, pesticides, or other contaminants, if entering waterways, could result in potential significant impacts to jurisdictional waterways, requiring mitigation. Mitigation measures would be implemented to reduce these impacts to less than significant, including BMPs for equipment operation and fueling, stormwater management, and pesticide use. These are provided in BR-6 and BR-7 below. With mitigation, the impact would be less than significant.

Additional indirect impacts may potentially occur in waterways from construction or operational changes to water quality on areas downstream from CCL. Potential impacts to water quality have been addressed in other portions of the document, as described below.

**Erosion and Sedimentation.** Chapter 6.0, Surface Water Drainage, of the Original Draft EIR addressed surface water impacts for the Proposed Project. As described in Chapter 6.0, the precipitation drainage and control system for the Proposed Project will be designed and constructed to carry the peak discharge resulting from the 100-year 24-hour storm event as required by Title 27, and the stormwater runoff volume resulting from the Capital Flood event (50-year, 24-hour storm) as required by LACDPW. Because CCL has stormwater retention/detention basins to control sedimentation and runoff, the Proposed Project would not result in direct impacts to riparian habitats or streambanks of downstream watercourses.

**Urban Runoff.** Permanent indirect impacts from increased urban runoff into the drainage system occur when there is an increase in impervious surface as a result of landfill buildout (infrastructure areas), including contribution of pollutants, which may include petroleum and chemical products from equipment or vehicles, and other hazardous substances. The stormwater retention/detention basins at CCL serve to prevent runoff from the site except during extreme weather events. Current runoff from the landfill and surrounding areas into the onsite stormwater retention/detention basins is primarily limited to sediment and oil and grease from equipment or vehicles. Common urban runoff constituents such as pesticides, herbicides, dust suppressants, and fertilizers are not typically used at CCL.

Chapter 6.0 of the Original Draft EIR addressed surface water impacts for the Proposed Project. As described in Chapter 6.0, the precipitation drainage and control system for the Proposed Project will be designed and constructed to carry the peak discharge resulting from the 100-year 24-hour storm event as required by Title 27, and the stormwater runoff volume resulting from the Capital Flood event (50-year, 24-hour storm) as required by LACDPW.

Chapter 7.0 of the Original Draft EIR addressed water quality impacts for the Proposed Project, including impacts to downstream receiving waters. Chapter 7.0 concluded that implementation of all required water quality monitoring and response programs at CCL would ensure that the Proposed Project would not result in significant impacts to downstream water quality, including those associated with urban runoff.

**Mitigation Measures**

**BR-5** For potential impacts to jurisdictional waters, permits shall be obtained for the Proposed Project from USACE (Section 404, CWA) and CDFW (SAA, Section 1603); conditions of these permits would be complied with for the Proposed Project. The terms and conditions of these permits are anticipated to require mitigation consistent with “Compensatory Mitigation for Losses of Aquatic Resources; Final Rule” (USACE, EPA, *Federal Register*, April 10, 2008), and with CDFW requirements for SAAs. A mitigation plan may be required prior to permit issuance. If a

mitigation plan is required, ratios of waters impacted to waters mitigated would be negotiated with the regulatory agencies and the results of that negotiation included in the plan.

**BR-6** Stationary equipment such as motors, pumps, generators, and welders shall be located a minimum of 50 feet outside CDFW and USACE jurisdictional drainages where impacts have not been permitted. Construction staging areas, stockpiling, and equipment storage shall be located a minimum of 50 feet outside non-permitted CDFW and USACE jurisdictional drainages. Construction vehicles and equipment shall be checked periodically to ensure they are in proper working condition, including regular inspections for leaks, which would require immediate repair. Refueling or lubrication of vehicles and cleaning of equipment, or other activities that involve open use of fuels, lubricants, or solvents, shall occur at least 100 feet away from CDFW and USACE jurisdictional drainages where impacts have not been permitted, and at least 50 feet from other flagged, sensitive biological resources.

**BR-7** Only pesticides, herbicides, fertilizers, dust suppressants, or other potentially harmful materials approved by EPA and/or the California Department of Toxic Substance Control shall be applied at CCL, in accordance with relevant state and federal regulations. Rodenticides will not be used. Instead, methods that do not persist and infiltrate the natural food chain will be used for pest elimination such as trapping, gassing, etc. Sediment basins are present along all drainages at CCL, which capture runoff prior to discharging offsite. Sediment basins will continue to be regularly maintained.

#### 8.6.3.3 Potential Impacts from Nuisance Wildlife

Landfill operation may result in the introduction and success of nuisance wildlife, including gulls, ravens, brown-headed cowbirds, common starlings, and rats (*Rattus* spp.). These species can displace native wildlife, with potentially significant impacts. Negative impacts from vectors and nuisance wildlife would be mitigated through the implementation of BR-8 described below. Implementation of the measure would ensure that potential impacts from nuisance wildlife are less than significant.

**Mitigation Measures**

**BR-8** Construction sites and landfill operation shall be kept free of trash and litter. Food-related trash and litter shall be placed in closed containers and disposed of daily. Nuisance wildlife breeding will be discouraged at CCL by excluding cavities in buildings and/or equipment or facilities left idle for more than 6 months. To reduce risk of infestation by the non-native Argentine ant (*Linepithema humile*), a 500-foot buffer will be established adjacent to uninfested habitats at CCL within which no permanent, artificial water sources will be applied, and inspections for exotic ant infestations will be required for any landscape or restoration container-stock plants proposed for installation. Landfill operations require daily covering of all portions of the active landfill; this practice would be continued, further reducing risk of nuisance wildlife.

#### 8.6.3.4 Potential Impacts to Special-Status Plant Species

**Potential Impacts**

Federal- and state-listed plant species that could occur in the vicinity of CCL include Braunton's milk-vetch, Nevin's barberry, San Fernando Valley spineflower, and slender-horned spineflower. Database analyses indicate limited distribution of these species in the vicinity of CCL, and none of these species were identified in 2016 rare plant surveys. However, there is a limited potential for occurrence of some of the federal- and state-listed plants at CCL, based on the presence of suitable habitat. If individual federal- and state-listed plant species are present at CCL, they may be lost as a result of the Proposed Project, including construction-related impacts from grading and filling activities. This would represent a significant impact.

During rare plant surveys in 2016, rare plants were identified at CCL (CNPS designations 1B, 4, and Locally Rare), including club-haired Mariposa lily (CNPS 4), slender Mariposa lily (CNPS 1B), and hybrids between these subspecies; and Peirson's morning-glory (CNPS 4) California sunflower (CNPS Locally Rare), narrowleaf Stillingea (CNPS Locally Rare), and beavertail cactus (CNPS Locally Rare). Some individuals and populations of these rare plants are within areas of CCL that are proposed for grading and development, and are anticipated to be impacted. The loss of rare plant individuals or stands would represent a significant adverse impact, requiring mitigation. Figure 8-5 shows the locations of rare plants at CCL during surveys conducted in 2016 relative to anticipated disturbance limits.

Other special-status plant species (including any CNPS rare plants designated 1 – 4, or Locally Rare) may occur at CCL; however, no additional species were identified during surveys in 2016. The loss of CNPS rare plants at the landfill from the Proposed Project would be considered a significant impact.

Mitigation Measure BR-9 is provided to address impacts to rare plants, including impacts that have already been identified. Specifically, BR-9 would require preconstruction surveys of proposed development areas in advance of ground-disturbing activities. If additional rare plants are identified, the area would be excluded and avoided as feasible. If locations of rare plants are in areas that cannot be effectively avoided, then a Rare Plant Relocation Plan would identify effective means of translocation of the individuals or stands, including topsoil salvage to preserve seed bank and management of salvaged topsoil; seed collection, storage, possible nursery propagation, and planting; salvage and planting of other plant propagules (e.g., rhizomes, bulbs) as feasible; location of receptor sites to include on- or offsite property that could serve as permanent open space areas; land protection instruments for receptor areas; and funding mechanisms. Since it is unknown what additional plants would be found during surveys, consultation with appropriate regulatory agencies and specialists in conservation of the identified species will identify potential for appropriate salvage and relocation of soil or seeds, or purchase of mitigation credits or offsite property. The Rare Plant Relocation Plan would be developed consistent with the Draft Revegetation, Rare Plant Relocation, and Oak Tree Performance Criteria provided in Appendix E3 of this Partially Recirculated Draft EIR, and would require approval of LADRP and CDFW.

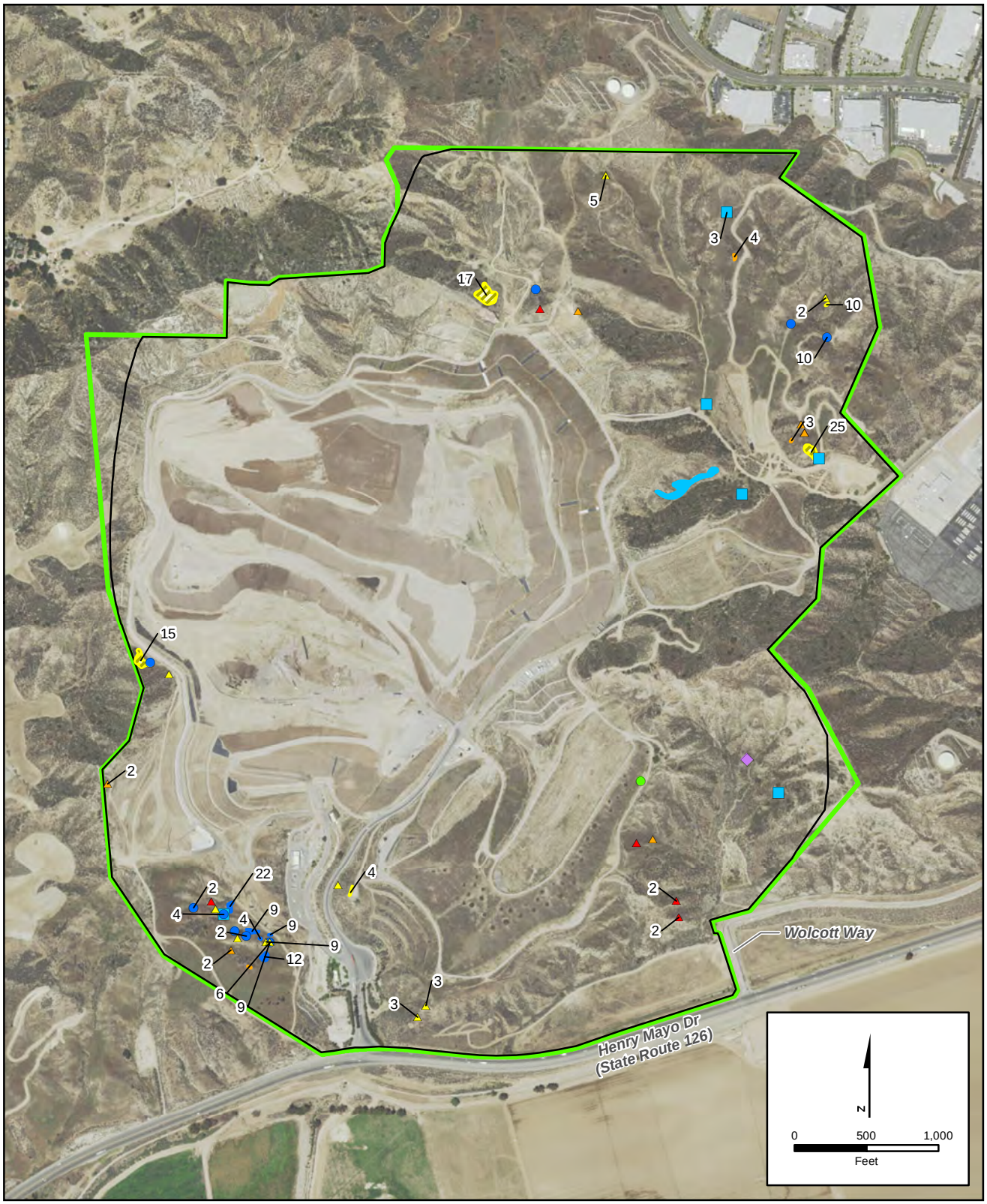
With the implementation of BR-9, the impacts to special-status plants would be reduced to below the level of significance.

**Mitigation Measures**

**BR-9** Preconstruction surveys by qualified botanists shall be conducted for special-status plant species in impact areas prior to ground-disturbing activities, and if necessary and feasible, resource relocation or exclusion shall be implemented. Resource relocation will be to a location deemed suitable for successful relocation by a qualified biologist and conducted in coordination with CDFW. Exclusion zones shall be implemented with fencing and/or signage that restricts access.

- For rare plants, this shall include focused surveys by a qualified botanist conducted during the appropriate season for detection (generally during flowering period) prior to ground-disturbing activities over the entire disturbance area proposed for the project, and then again the first season prior to disturbance over the area proposed to be disturbed for each phase (cell) of landfill development. If suitable transplant areas for rare plants exist at CCL, surveys will also include potential areas for relocation onsite in order to provide background data for determining transplant success. If no suitable relocation areas exist at CCL, potential mitigation areas in conserved areas within the local watersheds will be identified and surveyed at the same time in order to have background data. Surveys shall follow standard survey protocol for rare plants outlined in Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS, 1996) and/or Protocols for Surveying and Evaluation Impacts to Special Status Native Plant Populations and Natural Communities (CDFW, 2009).

- If special-status plants are found at CCL they shall be field marked and mapped with global positioning system units to evaluate potential for impacts from proposed grading. Where feasible, special-status plants will be avoided; protective measures to exclude area shall be implemented. Exclusion zones adjacent to active construction or active landfill will be protected with permanent fencing. More remote exclusion zones not accessible by construction equipment or near adjacent road access points shall be protected by temporary fencing (e.g., orange construction fencing) when road access is within 100 feet. If road access becomes immediately available to the area, permanent fencing will be installed. Fencing shall be maintained and construction crews informed about avoidance during construction. The site biological monitor will continue to monitor compliance with exclusion zones.
- Rare plants have been identified within construction limits during 2016 surveys. For these, and any additional rare plants identified prior to ground disturbance that are within the grading footprint or other areas identified for unavoidable disturbance (including species of CNPS Rare Plant Ranks 1-4 or Locally Rare), a Rare Plant Relocation Plan will be developed in consultation with CDFW. Plant salvage for transplanting shall take place before any clearing or grading of the sensitive plant occurs. Preliminary performance criteria, general methods of transplanting, and other anticipated components of this plan are provided in the Draft Revegetation, Rare Plant Relocation, and Oak Tree Performance Criteria provided in Appendix E3 of this Partially Recirculated Draft EIR.
- The Rare Plant Relocation Plan shall address mitigation for special-status plants, including topsoil salvage to preserve seed bank and management of salvaged topsoil; seed collection, storage, possible nursery propagation, and planting; salvage and planting of other plant propagules (e.g., rhizomes, bulbs) as feasible; location of receptor sites to include on- or offsite property that could serve as permanent open space areas; land protection instruments for receptor areas; and funding mechanisms. The Rare Plant Relocation Plan shall include methods, monitoring, reporting, success criteria, adaptive management, and contingencies for achieving success. Where feasible, background data for up to 3 years will be collected on receptor sites.
- If rare plant relocation cannot be achieved, through lack of receptor sites, or lack of success during the monitoring period, then purchase of mitigation credits or offsite property with known populations of the affected species for inclusion in permanent open space areas or a conservation easement would be implemented, with priority given to acquisition of offsite property.
- Locations within CCL that will not be developed are present adjacent to existing population of these species that may serve as receptor sites, and would be investigated for additional data. If found suitable, topsoil from impacted sites may be conserved and placed on these sites, seeds, bulbs (ex. *Calochortus* spp.), rhizomes (ex. *Calystegia peirsonii*), and entire plants and pads (ex. *Opuntia basilaris* var. *basilaris*), may be collected/salvaged and planted on these sites, and ongoing monitoring and maintenance of plantings implemented. The Rare Plant Relocation Plan shall have the final details of plant transplant methods.
- The onsite receptor/mitigation sites would be monitored for a minimum of 5 years to determine mitigation success or failure, consistent with the Draft Revegetation, Rare Plant Relocation, and Oak Tree Performance Criteria provided in Appendix E3 of this Partially Recirculated Draft EIR and the Rare Plant Relocation Plan. If necessary, remedial measures consistent with the approved plan would be implemented to satisfy mitigation objectives.




***LEGEND***

- Limit of Disturbance
- Project Boundary
- Calochortus clavatus
- Calochortus clavatus clavatus
- Calochortus clavatus gracilis
- Calystegia peirsonii
- Helianthus californicus
- Opuntia basilaris basilaris
- Stillingia linearifolia
- Opuntia basilaris basilaris
- Calochortus clavatus
- Calochortus clavatus clavatus
- Calochortus clavatus Complex
- Calystegia peirsonii

Note: Special-status plant locations are labeled with the number of plants identified at each site. Locations where a single plant was identified are not labeled.

Figure 8-5.
Special-status Plants
*Chiquita Canyon Landfill*
*Master Plan Revision*

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#### 8.6.3.5 Potential Impacts to Special-Status Wildlife Species

The Proposed Project would result in the loss of habitat for several special-status wildlife species expected to occur at CCL. For those species not observed but expected to occur at CCL, potential impacts were evaluated based on the habitat for which the species is expected to occupy.

For aquatic species (fish and amphibians), downstream effects to the aquatic habitats, primarily through potential impairment of water quality in Castaic Creek and Santa Clara River, are evaluated.

A number of species that may occur in the general vicinity of CCL are unlikely to occur within the area of potential effects for the landfill, either on or near CCL or along areas of potential downstream effects. These species are listed in Table 8-3 as unlikely to occur within the area of potential effects. No impact is anticipated to these species from the Proposed Project, and they are not addressed further.

Potential significant impacts to special-status wildlife may occur from habitat loss, from direct mortality during construction from equipment or land clearing, or from construction activity, noise, or dust adjacent to wildlife denning or nesting sites. These impacts are detailed in the sections that follow.

Mitigation for habitat loss for special-status wildlife is provided in BR-1, requiring revegetation of habitats at CCL. With mitigation, the impact is anticipated to be less than significant. General and specific mitigation for direct mortality of special-status wildlife is provided in BR-10. With mitigation, the impacts are anticipated to be less than significant.

**BR-10** Preconstruction surveys by qualified biologists shall be conducted for special-status wildlife species in impact areas prior to ground-disturbing activities, and if necessary and feasible, resource relocation or exclusion for special-status species shall be implemented. Wherever practical, relocation shall be passive, allowing animals to exit the area on their own. Any grubbing, grading or other ground disturbing activities at CCL would be done in a manner that encourages mobile wildlife species to leave the project area to escape safely into immediately adjacent undisturbed habitat, wherever feasible. For low mobility species, salvage and relocation by a qualified biological monitor would be implemented. Resource relocation shall be to a location deemed suitable for successful relocation by a qualified biologist and conducted by individuals with appropriate handling permits as required by CDFW or USFWS. Where practical, exclusion zones shall be implemented in lieu of relocation with fencing and/or signage that restricts access. Construction and construction monitoring for animals will occur at discrete time periods. Construction monitoring shall be conducted in areas containing native vegetation at the time of construction activity within the limit of active construction disturbance. Within areas containing native vegetation, ground-disturbing activities shall be prohibited until the area is cleared by a qualified biological monitor during a preconstruction survey within 7 days prior to the beginning of construction activities. Biological monitors shall also monitor construction activities within 100 feet of avoided CDFW and USACE jurisdictional drainages.

- For burrowing owl, suitable burrows will be identified during surveys and if feasible, excluded from disturbance during construction. If avoidance is not feasible, burrows will be scoped during the non-breeding season (September 1 to January 31) to determine if they are occupied. If unoccupied, burrows will be collapsed. If burrows are occupied, burrow exclusion will be implemented with one-way doors in burrow openings during the non-breeding season to exclude burrowing owls. After exclusion, burrows will be collapsed. If feasible, alternative manmade burrows will be installed on lands not subjected to construction disturbance, and within 300 feet of excluded burrows. Surveys would be consistent with the CDFW requirements for burrowing owl survey; mitigation measures presented here are consistent with CDFW (2012), and details of how mitigation would be implemented would be consistent with this document.

- For special-status reptiles (coast patch-nosed snake, coastal western whiptail, California legless lizard, San Diego horned lizard), preconstruction surveys in areas where land clearing will occur shall consist of gently raking areas of soft soils, sand, and dense leaf litter to identify individuals burrowed or buried in leaf litter. Individuals encountered will be captured and translocated to an area of undisturbed, intact habitat nearby deemed suitable for successful translocation by a qualified biologist. Translocation will be performed by biologists with appropriate handling permits by CDFW.
- Special-status land mammals (San Diego black-tailed jackrabbit, San Diego desert woodrat, American badger): preconstruction surveys will consist of surveying and identifying evidence of occupancy and use, including rabbit forms, woodrat nests, and badger natal dens. If located during the breeding season for these species, features will be surveyed or scoped to determine occupancy if possible. If unoccupied, they will be dismantled or collapsed. If occupied, or if occupancy cannot be determined, exclusion zones will be established until occupancy can be determined or until the breeding season concludes. If features are identified during the non-breeding season, they will be gently dismantled or collapsed, allowing any occupants if present to disperse. Where habitat must be dismantled, alternative habitat features will be established in nearby undisturbed areas, including creating specific conditions suitable for the species if necessary, such as downed wood structures in shade suitable for woodrat.
- For western spadefoot, if ground-disturbing activities will be conducted within 1,000 feet of the sedimentation basins at CCL, preconstruction ground surveys shall occur within 1,000 feet of potential breeding ponds (sediment basins). The top 6 inches of soft soils and leaf litter shall be gently raked and small mammal burrows and soil cracks will be inspected or scoped for aestivating spadefoot. If found, western spadefoot will be relocated to suitable natural or artificial burrows immediately adjacent to sediment basins outside the disturbance limits. Any aestivating western spadefoot encountered during construction within 1,000 feet of sedimentation basins would be relocated to intact habitat not proposed for the current phase of construction within 1,000 feet of the sedimentation basins, and placed in similar habitat and conditions.
- Bird nests: Preconstruction surveys for nesting pairs, nests, and eggs shall occur in areas proposed for vegetation removal, and active nesting areas flagged. Mitigation shall be implemented as described below under BR-13.
- Bat Roosts: Where bat roosting habitat cannot be avoided, preconstruction surveys consisting of exit surveys, roost surveys of potential roost sites, and evidence of bat sign (guano) shall occur to identify bat species, as feasible, and active roosts. Mitigation shall be implemented as described below under BR-14.

#### 8.6.3.6 Potential Impacts to Special-status Species from Downstream Water Quality

**Potential Impacts**

The Santa Clara River downstream of the Proposed Project has, as stated, Beneficial Uses, warm freshwater habitat (WARM), wildlife habitat (WILD), rare/threatened/endangered species (RARE), and wetland habitat (WET). Special-status fish species that occur downstream of CCL include arroyo chub, Santa Ana sucker, southern steelhead trout, and unarmored threespine stickleback; all are known to occur in portions of the Santa Clara River or Castaic Creek. Additional special-status amphibians may occur downstream including California red-legged frog, coast range newt, southwestern arroyo toad, and western spadefoot. Aquatic reptiles are also documented to occur downstream, including southwestern pond turtle and two-striped garter snake.

**Erosion and Sedimentation.** Chapter 6.0 of the Original Draft EIR addressed surface water impacts for the Proposed Project. As described in Chapter 6.0, the precipitation drainage and control system for the Proposed Project will be designed and constructed to carry the peak discharge resulting from the 100-year 24-hour storm event as required by Title 27, and the stormwater runoff volume resulting from the Capital Flood event (50-year, 24-hour storm) as required by LACDPW. Because CCL has stormwater retention/detention basins to control sedimentation and runoff, the Proposed Project would not result in direct impacts to riparian habitats or streambanks of downstream watercourses.

**Urban Runoff.** Permanent indirect impacts from increased urban runoff into the drainage system occur when there is an increase in impervious surface as a result of landfill buildout (infrastructure areas), including contribution of pollutants, which may include petroleum and chemical products from equipment or vehicles, and other hazardous substances. The stormwater retention/detention basins at CCL serve to prevent runoff from the site except during extreme weather events (as defined in Erosion and Sedimentation paragraph above). Current runoff from the landfill and surrounding areas into the onsite stormwater retention/detention basins is primarily limited to sediment and oil and grease from equipment or vehicles. Common urban runoff constituents such as pesticides, herbicides, dust suppressants, and fertilizers are not typically used at CCL, but specific provision is made for their use in mitigation measure BR-7.

Chapter 6.0 of the Original Draft EIR addressed surface water impacts for the Proposed Project. As described in Chapter 6.0, the precipitation drainage and control system for the Proposed Project will be designed and constructed to carry the peak discharge resulting from the 100-year 24-hour storm event as required by Title 27, and the stormwater runoff volume resulting from the Capital Flood event (50-year, 24-hour storm) as required by LACDPW.

Chapter 7.0 of the Original Draft EIR addressed water quality impacts for the Proposed Project, including impacts to downstream receiving waters. Chapter 7.0 concluded that implementation of all required water quality monitoring and response programs at CCL would ensure that the Proposed Project would not result in significant impacts to downstream water quality, including those associated with urban runoff.

#### 8.6.3.7 Potential Impacts to Special-Status Amphibians

**Potential Impacts**

**Arroyo Toad.** CCL does not support seasonally ponded waters sufficient to last a minimum of 60 to 90 days, which would be required to support breeding populations of arroyo toad. The nearest breeding habitat for the arroyo toad is along Castaic Creek and the Santa Clara River downstream of CCL. Surface flows were channelized into underground culverts during the construction of the United States Postal Service facility southeast of the landfill. This channelization poses a daunting physical constraint for any movement onto CCL. In addition, there are no records of occurrence for arroyo toad within Castaic Creek adjacent to CCL. Records do occur farther upstream on Castaic Creek, or nearby on the Santa Clara River. Given these conditions, the species is presumed absent from CCL, and no direct impacts to arroyo toad are anticipated.

Designated critical habitat for this species occurs along Castaic Creek down to its confluence with Santa Clara River. However, the Proposed Project would not impact critical habitat. Potential for downstream changes in water quality that could affect arroyo toad are addressed in Chapters 6.0 and 7.0 of the Original Draft EIR.

**California Red-Legged Frog.** CCL does not support suitable breeding habitat for the California red-legged frog, which requires riparian areas with ponds or slow-moving waters with dense emergent vegetation. In addition, underground culverts that separate the landfill from the nearest adjacent habitat at Castaic Creek would generally preclude movement or dispersal of red-legged frogs onto the site. Therefore, no direct impacts from the Proposed Project to the red-legged frog are anticipated. Critical

habitat is designated to the northeast of the landfill along Castaic Creek, but the Proposed Project would not impact the critical habitat. Potential for downstream changes in water quality that could affect red-legged frog are addressed in Chapters 6.0 and 7.0 of the Original Draft EIR.

**Western Spadefoot.** Potential aquatic habitat/seasonal pools are present at CCL that could support western spadefoot, and western spadefoot has been observed at CCL within the East Canyon detention basin. Detention basins are not anticipated to be disturbed during construction, and no other aquatic habitat for spadefoot is present on CCL; however, impacts from construction adjacent to breeding pools for this species could result in direct mortality to aestivating adults in adjacent upland habitat, a significant impact. To mitigate for this impact, BR-10 would be implemented, requiring preconstruction surveys and relocation of individuals of this species if found. With mitigation, the impact would be less than significant. Operational impacts to spadefoot are addressed below in Section 8.6.3.19.

**Coast Range Newt.** No aquatic habitat or seasonal pools are present at CCL that would support coast range newt; as such, there would be no direct impact to this species from the Proposed Project. The East Canyon and detention basin at CCL may hold water long enough to support breeding amphibians; however, the East Canyon and detention basin at CCL are not considered suitable for coast range newt due to the lack of vegetation. Therefore this species has a low probability to occur at CCL, but may occur downstream along the Santa Clara River.

Potential for downstream changes in water quality that could affect this species are addressed in Chapters 6.0 and 7.0 of the Original Draft EIR. Chapter 6.0 concluded that the drainage and control system at CCL will prevent substantial erosion of surface runoff and offsite drainages will not be altered. Chapter 7.0 concluded that implementation of all required water quality monitoring and response programs at CCL would ensure that the Proposed Project would not result in significant impacts to downstream water quality.

**Mitigation Measures**

**BR-10** shall be implemented.

#### 8.6.3.8 Potential Impacts to Special-Status Reptile Species

**Potential Impacts**

The following special-status reptiles have the potential to occur in the vicinity of CCL: San Diego horned lizard, silvery legless lizard, western pond turtle, coast patch-nosed snake and two-striped garter snake.

**Western Pond Turtle, Two-Striped Garter Snake.** The western pond turtle and two-striped garter snake have no suitable aquatic habitat onsite; therefore, no direct impacts to these species would occur and no mitigation measures are necessary. Potential for downstream changes in water quality that could affect these species are addressed in Chapters 6.0 and 7.0 of the Original Draft EIR.

**California Silvery Legless Lizard, Coast Patch-Nosed Snake.** At CCL, these special-status species are likely to be associated with shrublands. Direct, permanent loss of this habitat would occur from grading and filling activities. Heavy vehicle traffic and other associated construction impacts could also result in direct mortality or injury of the species. These impacts are considered to be adverse and potentially significant, requiring mitigation. To mitigate for habitat loss, BR-1 would be implemented, requiring revegetation of onsite habitats. To mitigate for direct mortality impacts, BR-10 would be implemented, requiring preconstruction surveys and relocation of individuals of these species if found. With mitigation, these impacts would be less than significant.

**San Diego Horned Lizard.** This species may be associated with dry wash, coastal scrub, or chaparral habitats at CCL, although focused surveys did not identify individuals or sign of this species. However, extensive harvester ant mounds are present that provide good forage for this species. Direct, permanent loss of habitat for this species would occur from grading and filling activities. A summary of habitat

losses over the life of the project is provided in Table 8-1; most of the scrub, grassland, and riparian communities may provide habitat for this species if optimal forage conditions are present. Heavy vehicle traffic and other associated construction impacts could also result in direct mortality or injury of the species. These impacts are considered to be adverse and potentially significant, requiring mitigation. To mitigate for habitat loss, BR-1 would be implemented, requiring revegetation of onsite habitats. To mitigate for direct mortality impacts, BR-10 would be implemented, requiring preconstruction surveys and relocation of individuals of these species if found. Because introduction of the non-native Argentine ant (*Linepithema humile*) can outcompete the native harvester ant species that are forage for this species, landfill operation may reduce habitat quality for horned lizards, representing a significant adverse impact. To mitigate for this, BR-8 would be implemented, requiring a 500-foot buffer to be established adjacent to uninfested habitats on the CCL site within which no permanent, artificial water sources will be applied, and inspections for exotic ant infestations will be required for any landscape or restoration container-stock plants proposed for installation. With mitigation, impacts to San Diego horned lizard would be less than significant.

**Mitigation Measures**

BR-1 and BR-10 shall be implemented.

#### 8.6.3.9 Potential Impacts to Federal- and State-Listed Bird Species

**Potential Impacts**

California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, and California condor are all federal- and state-listed species with potential to occur in the general vicinity of CCL.

**Coastal California Gnatcatcher.** Marginal, potential nesting habitat for this species occurs in the form of *Artemisia californica-Eriogonum fasciculatum* Shrubland Alliance and other similar habitats on the site with *Artemisia californica* present. If gnatcatcher are present at CCL, the loss of occupied habitat, individuals, or nests of this species would represent a significant adverse impact. Designated critical habitat for gnatcatcher occurs over 5 miles south and southeast of CCL; however, no impacts to designated critical habitat would occur from the Proposed Project. To mitigate for potential significant impacts, BR-11 would be implemented, requiring protocol surveys for gnatcatcher, and if present, avoidance of impacts through nest buffers and/or seasonal work restrictions, as determined in coordination with USFWS. With mitigation, the impact would be less than significant.

**Least Bell's Vireo, Southwestern Willow Flycatcher.** CCL does not support lowland riparian habitats that are suitable nesting and breeding habitat for these species. Individual least Bell's vireo sightings have been documented in the Santa Clara River between I-5 and its confluence with Castaic Creek near CCL. Critical habitat for this species exists 0.3 mile south of CCL in the Santa Clara River. Southwestern willow flycatcher was also detected along the Santa Clara River in 1995. However, no physical impacts to downstream riparian habitat would occur from the Proposed Project. Indirect impacts from changes in water quality could adversely affect the habitat and forage of these birds. Chapter 6.0 concluded that the drainage and control system at CCL will prevent substantial erosion of surface runoff. Chapter 7.0 concluded that implementation of all required water quality monitoring and response programs at CCL would ensure that the Proposed Project would not result in significant impacts to downstream water quality. With implementation of required water quality monitoring and response programs, the impacts to downstream water quality are anticipated to be less than significant. This would include less-than-significant impacts on Beneficial Uses, including the fish, wildlife, and wetland habitat uses, and less than significant effects on these bird species.

Lighting impacts to nearby riparian areas from night lighting at CCL from nighttime operations would potentially result in a significant impact by increasing risk of predation or other negative effects. This would represent a significant impact on these riparian bird species. To mitigate for this effect, BR-12

would be implemented, which requires the use of directional shading on all elevated lighting for nighttime operations. With mitigation, the effect would be less than significant.

**California Condor.** CCL does not support nesting habitat but does support potential forage habitat for this wide-ranging species. The Proposed Project may render the site unsuitable for condor foraging due to construction and/or operation activities; in general, condors are expected to avoid the area due to current operational activities. Given the large extent of foraging habitat in the region and the wide-ranging nature of the species, the loss of this area as potential forage would not represent a significant impact. Because the active surface of the landfill is covered on a daily basis, it is not anticipated to attract foraging California condors (should suitable carrion forage be present), which could put individuals at risk. As such, no impact is anticipated. Perimeter fencing design, power poles, and other man made features can be a risk to condors and/or other raptors. To avoid this risk, only CDFW-recommended designs for lighting, fences, power poles, or other manmade features would be implemented, where available, as indicated in BR-12.

**Mitigation Measures**

BR-11 and BR-12 shall be implemented.

Mitigation for potential impacts to the federally listed California gnatcatcher includes the following:

**BR-11** USFWS protocol-level surveys shall be conducted for all coastal California gnatcatcher habitat well in advance of any ground-disturbing activities. If surveys are negative, the species shall be presumed absent, and no further impacts shall be anticipated or mitigation measures required.

If the surveys are positive (i.e., coastal California gnatcatcher is present), then coordination shall be initiated with USFWS on required measures to avoid, minimize, or mitigate take of this species. These are anticipated to include:

- Construction activities in the vicinity of active gnatcatcher nests shall be prohibited within a specified distance of nests (500 feet unless otherwise agreed to by USFWS) until after the young have fledged and the nesting is complete.
- Clearing of occupied habitat shall be avoided if possible or practicable. If it is not practicable, clearing shall be prohibited during the nesting season (February to August).

**BR-12** Although no nighttime construction is anticipated, lighting for construction activities conducted during early morning or early evening hours shall be minimized to the extent possible through the use of directional shading to minimize impacts to nocturnal or crepuscular wildlife. Only CDFW-recommended designs for lighting, fences, power poles, or other manmade features would be implemented where available.

### 8.6.3.10 Potential Impacts to Nesting Bird Species of Special Concern

**Potential Impacts**

Yellow-breasted chat, yellow warbler, turkey vulture, loggerhead shrike, tricolored blackbird, California horned lark, golden eagle, white-tailed kite, prairie falcon, Cooper's hawk, northern harrier, burrowing owl, short-eared owl, Southern California rufous-crowned sparrow, grasshopper sparrow, and Bell's sage sparrow are federal Species of Concern, state Species of Special Concern, state Watch List, or County Sensitive Bird Species known to breed in the vicinity of CCL. Of these, only loggerhead shrike, California horned lark, short-eared owl, turkey vulture, burrowing owl, Southern California rufous-crowned sparrow, grasshopper sparrow, and Bell's sage sparrow have the potential to nest directly on the landfill, and only yellow-breasted chat, tricolor blackbird and yellow warbler might nest in downstream riparian habitats.

**Yellow-Breasted Chat, Yellow Warbler, Tricolored Blackbird.** Suitable breeding habitat for yellow-breasted chat, which requires dense riparian thickets of willows and other brushy tangles near watercourses, and yellow warbler, which prefers similar riparian areas, is present a considerable distance downstream of CCL along the Santa Clara River. Suitable breeding habitat for tricolored blackbird, which includes emergent wetlands, is also present further downstream of CCL along the Santa Clara River. Suitable foraging habitat includes areas with abundant insects, such as grasslands, and landfills. No physical impacts to downstream riparian habitat would occur from the Proposed Project. Indirect impacts from changes in water quality have been evaluated to determine if there is a potential for an adverse effect on the habitat and forage of these birds. Chapter 6.0 of the Original Draft EIR concluded that the drainage and control system at CCL will prevent substantial erosion of surface runoff. Chapter 7.0 of the Original Draft EIR concluded that implementation of all required water quality monitoring and response programs at CCL would ensure that the Proposed Project would not result in significant impacts to downstream water quality. With implementation of required water quality monitoring and response programs, the impacts to downstream water quality are anticipated to be less than significant. This would include less-than-significant impacts on Beneficial Uses, including the fish, wildlife, and wetland habitat uses. Less than significant or no impacts to yellow-breasted chat, yellow warbler, or tricolored blackbird are anticipated from downstream water quality effects.

Lighting impacts to nearby riparian areas from night lighting at CCL from nighttime operations would potentially result in a significant impact by increasing risk of predation or other negative effects. This would represent a significant impact on these riparian bird species. To mitigate for this effect, BR-12 would be implemented, which requires the use of directional shading on all elevated lighting for nighttime operations. With mitigation, the effect would be less than significant.

**California Horned Lark, Loggerhead Shrike, Short-eared Owl, Grasshopper Sparrow.** The dry, open grassland areas at CCL provide a suitable foraging and breeding habitat for the California horned lark, short-eared owl, loggerhead shrike, and grasshopper sparrow. These species may occur in appropriate habitat throughout their range in Southern California. Potential for these species to occur and breed at CCL is moderate to high. Construction activities involving grading and filling of the annual grasslands and the mixed grassland/shrub habitats would result in direct permanent loss of nesting and foraging habitat. Although habitat for these species is present in the region, in some cases it may be patchy, and California horned lark and loggerhead shrike are much diminished in their coastal populations and short-eared owl has become rare everywhere. Grasshopper sparrow breeding numbers are down including in areas along the south coast. Any removal of inhabited area could affect these species adversely. Therefore, the impacts from loss of habitat for these species are considered to be significant, and mitigation is required. BR-1 would be implemented to provide for revegetation of CCL habitats as mitigation for this impact. With mitigation, the impact is anticipated to be less than significant.

Direct loss of nesting individuals of these species may also occur during construction activities, a significant impact. To mitigate this effect, BR-13 would be implemented, requiring preconstruction surveys and nest avoidance. With mitigation, the impact is anticipated to be less than significant.

**Southern California rufous-crowned sparrow, Bell's sage sparrow.** Shrub areas at CCL including *Artemisia californica-Eriogonum fasciculatum* Shrubland Alliance and *Eriogonum fasciculatum* Shrubland Alliance may provide a suitable foraging and breeding habitat for the Southern California rufous-crowned sparrow and Bell's sage sparrow. These species may occur in appropriate habitat throughout their range in Southern California. Potential for these species to occur and breed at CCL is moderate. Construction activities involving grading and filling of the shrublands and mixed grassland/shrub habitats would result in direct permanent loss of nesting and foraging habitat. Although habitat for these species is present in the region, distribution of Southern California rufous-crowned sparrow is increasingly restricted due to urbanization and agricultural development, and Bell's sage sparrow is impacted by conversion of shrub habitats to grasslands. Any removal of inhabited area could affect these species adversely. Therefore, the impacts from loss of habitat for these species are considered to be significant,

and mitigation is required. BR-1 would be implemented to provide for revegetation of CCL habitats as mitigation for this impact. With mitigation, the impact is anticipated to be less than significant.

Direct loss of nesting individuals of these species may also occur during construction activities, a significant impact. To mitigate this effect, BR-13 would be implemented requiring preconstruction surveys and nest avoidance. With mitigation, the impact is anticipated to be less than significant.

**Turkey Vulture.** Shrub or grassland areas at CCL may provide a suitable foraging habitat for this species, and rocky escarpments including the base, ledges, or cavities in cliffs or rocky outcrops at CCL may provide nesting opportunities for this species. The loss of habitat for this species resulting from the Proposed Project is not likely to be significant given its wide-ranging habits and lack of selectivity in foraging habitats. However, the loss of active nests and/or individuals for this species would be potentially significant. To mitigate for this, mitigation measures BR-10 would be implemented requiring preconstruction surveys and nest exclusion or avoidance during the breeding season. With mitigation, the impact is anticipated to be less than significant.

**Burrowing Owl.** Grassland habitat at CCL provides limited potential breeding and foraging habitat for this species in isolated, open areas of small grasslands, previously developed lands, and disturbed roadsides. The burrowing owl is known from the Sterling Gateway property just north of the Proposed Project site, so it does occur in the vicinity. The species was not observed during field surveys on the Proposed Project site, and if present, is present in a small, unobserved population. If the species is present, the Proposed Project would result in loss of burrowing owl habitat, and construction clearing could result in loss of individuals. The loss of habitat for this species resulting from the Proposed Project is not likely to be significant given the limited extent of habitat consisting of small, isolated areas. This loss, and the lack of effect on the regional owl population resulting from a limited loss of burrowing owl habitat, is not anticipated to be significant. However, the loss of active nests and/or individuals or small colonies of this species would be potentially significant. To mitigate for this, mitigation measures BR-10 would be implemented, requiring preconstruction surveys and nest exclusion or avoidance during the breeding season. Surveys and mitigation measures would be consistent with the CDFW requirements for burrowing owl survey and mitigation (CDFW, 2012a). With mitigation, the impact is anticipated to be less than significant.

**Mitigation Measures**

**BR-1, BR-10, BR-12, and BR-13** shall be implemented.

**BR-13** In habitats where nesting birds might occur, vegetation removal shall be avoided when feasible during the nesting season (December through August); winter months are included because this area has potential for owls and hummingbirds, which may breed during this period. In addition, raptor nesting may be initiated by early January. Where this is not feasible, preconstruction surveys for nesting pairs, nests, and eggs shall occur in areas proposed for vegetation removal, and active nesting areas flagged. The biological monitor shall assign a buffer around active nesting areas (typically 300 feet for songbirds, 500 feet for raptors). The biological monitor will also clearly communicate the limits of buffers to the contractor and crew, and post and maintain, throughout the time of nest use, flagging, fencing, staking, or signs as otherwise needed. Construction activities shall be prohibited within the buffer until the nesting pair and young have vacated the nests, unless it can be demonstrated through biological monitoring that the construction activity is not hindering the nesting effort. Alternatively, if unused nests are identified in the disturbance area during preconstruction surveys, nests may be destroyed or excluded prior to active nesting.

### 8.6.3.11 Potential Impacts to Foraging or Transient Bird Species of Special Concern (Passerines)

**Potential Impacts**

**Tricolored Blackbird.** This species was detected in the immediate vicinity of CCL during the 2002 field surveys. However, there is no suitable nesting habitat that consists of dense marsh vegetation with bulrush and cattails onsite; therefore, there is no potential for this species to nest onsite. Annual grasslands provide limited foraging habitat for this species; although in general, it prefers agricultural areas or landfills. The loss of marginal forage habitat of grasslands for this species is not expected to represent a significant impact. The conversion of shrub and grasslands to active landfill, which is a preferred forage habitat for this species, is anticipated to be a beneficial impact, and expected to offset the loss of other less preferred forage habitats. The net outcome of these habitat changes is not expected to result in a significant adverse impact to the species.

**Yellow Warbler.** Breeding habitat is not present on CCL for this species. Transient birds may occur in chaparral or mule fat habitats onsite. The loss of this habitat for migrating individuals of this species would not represent a significant impact as other mule fat and suitable riparian habitat exists in the region.

### 8.6.3.12 Potential Impacts to Foraging or Transient Bird Species of Special Concern (Raptors)

**Potential Impacts**

**Golden Eagle, White-Tailed Kite, Prairie Falcon.** Golden eagle, white-tailed kite, and prairie falcon occur in the region and have the potential to forage over grasslands and open country at CCL. Loss of grassland forage sites for these species has been occurring throughout Los Angeles County (Harris, pers. comm., 2002), and the species may be regionally declining for this reason. Over the life of the Proposed Project, a total of 60.3 acres of *Brassica nigra* and Other Mustards Herbaceous Semi-Natural Alliance and 46.3 acres of *Avena* (*barbata, fatua*) Herbaceous Semi-natural Alliance would be lost. These vegetation types represent potential forage habitat for these species.

The loss of this additional raptor foraging habitat would represent a significant adverse impact to these species. To mitigate for this, BR-1 would be implemented, requiring revegetation of CCL with comparable habitat types. With this mitigation, the impact would be less than significant.

**Cooper's Hawk.** This species was observed foraging onsite in chaparral habitats during field surveys in 2002. The species' preferred forage habitat is open woodlands, riparian woodlands, and occasionally chaparral. Since there are abundant riparian and chaparral habitats in the region, the loss of this foraging habitat would not represent a significant adverse impact.

**Mitigation Measures**

**BR-1** shall be implemented.

### 8.6.3.13 Potential Impact to Special-Status Mammals (Excluding Bats)

**Potential Impacts**

**San Diego Black-Tailed Jackrabbit.** This species has a high potential for occurrence in upland areas at CCL. Grading and filling activities from the Proposed Project would result in direct, permanent loss of habitat, a significant impact since the coastal population of this subspecies is diminished. Some direct mortality of these species may also occur during construction, also a significant impact. Mitigation for loss of habitat would be provided in BR-1, requiring revegetation of CCL. Mitigation for loss of individuals would be provided in BR-10, requiring preconstruction surveys and clearing of individuals if encountered. With implementation of mitigation, these impacts would be reduced to less than significant.

**San Diego Desert Woodrat.** CCL provides a moderate potential for occurrence of this species in chaparral and other scrub habitats. Grading and filling activities from the Proposed Project would result in direct, permanent loss of habitat. Some direct mortality of these species also might occur during

construction. The loss of San Diego desert woodrat habitat and potential loss of individuals would represent an adverse, significant impact, requiring mitigation. Mitigation for loss of habitat would consist of site revegetation as provided in Mitigation Measure BR-1; mitigation for potential loss of individuals would consist of preconstruction surveys and resource exclusion or translocation, and creation of alternative suitable habitat features if appropriate, as provided in Mitigation Measure BR-10.

**American Badger.** Grassland and open scrubland at CCL has potential to support this species. Grading and filling activities from the Proposed Project would result in direct, permanent loss of habitat. Some direct mortality of these species also might occur during construction. The loss of American badger habitat and potential loss of individuals would represent an adverse, significant impact, requiring mitigation. Mitigation for loss of habitat would consist of site revegetation as provided in Mitigation Measure BR-1; mitigation for potential loss of individuals would consist of preconstruction surveys and resource exclusion, as provided in Mitigation Measure BR-10.

**Mitigation Measures**

**BR-1 and BR-10** shall be implemented.

### 8.6.3.14 Potential Impact to Special-Status Mammals (Bats)

**Potential Impacts**

**Long-Eared Myotis, Long-Legged Myotis, Yuma Myotis.** These federal Species of Concern forage over scrub, chaparral, water, and other open habitats, and may roost in crevices or small caves on rocky cliffs or outcrops. As such, suitable habitat is present at CCL for both roosting and foraging, and the species may occur. Roost sites near the Santa Clara River would potentially be preferred by females and their young because of the proximity to the foraging areas surrounding the river. Proximity to a foraging area like Santa Clara River conserves energy needed for transit to forage areas and can contribute to the probability of good reproductive and migration outcomes. The crevice habitat at CCL is potentially suitable for bat roosting, and the effect of filling an occupied roost site would be a significant direct impact. The Proposed Project would also result in the loss of potential forage habitat as CCL is developed. Indirect impacts may also result from active roost disturbance or abandonment from construction or operation activities. The loss of foraging habitat would not be considered a significant impact because abundant similar forage habitat occurs in the region. However, direct or indirect impacts to occupied roost sites would be significant, requiring mitigation. To avoid these impacts, Mitigation Measure BR-14 would be implemented. Mitigation Measure BR-14 would require impacts, including filling or construction activity disturbance, to active bat roosts be avoided during the parturition period (March to August), and exclusion of roost sites during the non-breeding season. If tree roosts are identified that require disturbance, and which can't be excluded, they would be initially disturbed by cutting small branches to encourage habitat abandonment, prior to full tree removal. If roosts require exclusion, alternative artificial roost construction would be implemented in the vicinity. With mitigation, the impacts are anticipated to be less than significant.

**California Leaf-Nosed Bat, Pallid Bat, Western Mastiff Bat, Big Free-Tailed Bat, Cave Myotis, Mexican Long-Tongued Bat, Pocketed Free-Tailed Bat, Spotted Bat.** These California Species of Special Concern forage over desert, scrub, chaparral, and other open habitats, and may roost in caves, crevices on low to high cliffs, buildings, or in rocky outcrops. As such, habitat is present at CCL for both roosting and foraging, and the species are likely to occur. Roost sites near the Santa Clara River would potentially be preferred by females and their young because of the proximity to the foraging areas surrounding the river. Proximity to a forging area like Santa Clara River conserves energy needed for transit and foraging and can contribute to the probability of good reproductive and migration outcomes. The crevice habitat at CCL is potentially suitable for bat roosting, and the effect of filling an occupied roost site would be a significant direct impact. The Proposed Project would also result in the loss of potential forage habitat as CCL is developed. Indirect impacts may also result from active roost disturbance or abandonment from

construction or operation activities. The loss of foraging habitat would not be considered a significant impact, because abundant similar forage habitat occurs in the region. However, direct or indirect impacts to occupied roost sites would be significant, requiring mitigation. To avoid these impacts, Mitigation Measure BR-14 would be implemented. Mitigation Measure BR-14 would require impacts to active bat roosts be avoided during the parturition period (March to August), and exclusion of roost sites during the non-breeding season. If roosts require exclusion, alternative artificial roost construction would be implemented in the vicinity. With mitigation, the impacts would be less than significant.

**Other Non-special Status Bat Species**

Species of bats not otherwise designated with special-status may also be present on CCL. Bats are non-game animals and are protected as such by Fish and Game Code Section 4150, California Code of Regulations, Section 251.1. Impacts to any bat roosts would be avoided or mitigated as indicated in Mitigation Measure BR-14. With mitigation, the impacts would be less than significant.

**Mitigation Measures**

**BR-14** A qualified bat biologist acceptable to CDFW shall be employed to supervise and report on construction activities with respect to bats. In habitats where roosting bats may occur, ground disturbance and roost destruction shall be scheduled, as feasible, during October 1 through February 28 or 29. Ground disturbance and roost destruction shall be avoided during the parturition period (generally March through August). Where this is not feasible, a qualified bat biologist shall conduct exit surveys, roost surveys of potential roost sites, or surveys for bat sign (e.g., guano) to identify bat species, if feasible, and active roosts. Construction activity within 300 feet of identified active roosts shall be prohibited until the completion of parturition (end of August), unless it can be demonstrated through biological monitoring that the construction activity is not affecting the active roost. Alternatively, if potential roosts are identified prior to onset of parturition, with concurrence from CDFW, roosts may be excluded during the evening forage period (within 4 hours after dark) or fitted with one-way exit doors to effectively eliminate and exclude roost. If tree roosts are identified that require disturbance, and which can't be excluded, they would be initially disturbed by cutting small branches (less than 2 inches) to encourage habitat abandonment, prior to full tree removal (implemented the following day). Roost exclusion will be conducted by a qualified bat biologist. Exclusion shall be preferentially done before March or after September for eviction of a maternity colony, and only with concurrence from CDFW. If exclusion is necessary, the bat biologist shall identify the bat species to be excluded, as feasible, and roost sites appropriate to the species to be displaced in the vicinity (within 1 mile) prior to any bat exclusion, and if none are identified, CCL shall provide artificial roost construction appropriate to the bat species to be displaced to offset loss of active roosts. Artificial roost construction would follow industry standard design, be sized to offset impacted roost(s), and be located greater than 300 feet from the active construction area, but within CCL property. A report will be prepared for submittal to CDFW and copied to LADRP on activities related to bat surveys and exclusion, including survey methods, findings including species and size of roosts if available, alternative roost locations and characteristics, and constructed roosts.

### 8.6.3.15 Potential Impact to Special-Status Fish

**Potential Impacts**

**Arroyo Chub, Santa Ana Sucker.** No aquatic habitat is present on CCL that would support the arroyo chub or Santa Ana sucker; as such, there would be no direct impact to these species from the Proposed Project. Potential for downstream changes in water quality that could affect these species are addressed in Chapters 6.0 and 7.0 of the Original Draft EIR.

**Southern Steelhead Trout.** No aquatic habitat is present on CCL that would support the southern steelhead trout; as such, there would be no direct impact to this species from the Proposed Project. Critical habitat is designated to the west of the landfill, but the Proposed Project would not impact the critical habitat. Potential for downstream changes in water quality that could affect these species are addressed in Chapters 6.0 and 7.0 of the Original Draft EIR.

**Unarmored Threespine Stickleback.** No aquatic habitat is present on CCL that would support the unarmored threespine stickleback; as such, there would be no direct impact to this species from the Proposed Project. The unarmored threespine stickleback is known to be a year-round resident of the Santa Clara River from the confluence of the Santa Clara River and Castaic Creek to I-5. It occurs in the area downstream of the Castaic confluence as far as the Ventura County border during the rainy season and was encountered broadly in the area during surveys for the Newhall Ranch development in the adjacent parts of the River. This area is a part of its core habitat. The original SEA #23 was developed along the Santa Clara River by the County of Los Angeles in part to protect unarmored threespine stickleback. Potential for downstream changes in water quality that could affect these species are addressed in Chapters 6.0 and 7.0 of the Original Draft EIR. Chapter 6.0 concluded that the drainage and control system at CCL will prevent substantial erosion from surface runoff. Chapter 7.0 concluded that implementation of all required water quality monitoring and response programs at CCL would ensure that the Proposed Project would not result in significant impacts to downstream water quality. With implementation of required water quality monitoring and response programs, the impacts to downstream water quality are anticipated to be less than significant, and indirect impacts to this species are not anticipated.

### 8.6.3.16 Potential Impact to Wildlife Movement Corridors

**Potential Impacts**

Some local wildlife movement may occur along ridgelines or valleys within the general vicinity of CCL. Two major wildlife corridors are known in the general vicinity of CCL, the Santa Clara River and the Santa Monica-Sierra Madre Connection as identified in the Missing Linkages Report (South Coast Wildlands, 2008), and CCL could contribute to movement along both these pathways. Impacts to the Santa Clara River corridor, which may include water quality effects, would be less than significant through implementation of all required water quality monitoring and response programs. Although CCL is outside the mapped boundary of this corridor, movement through the CCL could contribute or be a part of this corridor. Whether this occurs, or the extent CCL could contribute to this corridor, is unknown.

Many of the steeper ridgelines will be generally left undisturbed by the Proposed Project, and the existing landfill may currently constrain wildlife movement through the heart of the CCL site. Alternatively, some wildlife may move through the site at night. If the Proposed Project were to limit wildlife movement associated with wildlife linkages in the region, it would be a significant impact, requiring mitigation. To address the potential for impacts to wildlife corridors, mitigation measures associated with night lighting (BR-12) and site revegetation (BR-1) would be implemented. With mitigation, the impact is anticipated to be less than significant.

**Mitigation Measures**

Impacts to wildlife movement corridors would be mitigated through **BR-1 and BR-12**.

### 8.6.3.17 Potential Impacts under Local Policies or Ordinances

**Potential Impacts to SEAs**

Local policies or ordinances protecting biological resources will be complied with including SEAs designated by the County of Los Angeles. The nearest SEA in the vicinity is along the Santa Clara River, approximately 0.3 mile south of CCL. Potential for downstream changes in water quality that could affect this SEA are addressed in Chapters 6.0 and 7.0 of the Original Draft EIR. Chapter 6.0 concluded that the

drainage and control system at CCL will prevent substantial erosion from surface runoff. Chapter 7.0 concluded that implementation of all required water quality monitoring and response programs at CCL would ensure that the Proposed Project would not result in significant impacts to downstream water quality. With implementation of required water quality monitoring and response programs, the impacts to downstream water quality in this SEA are anticipated to be less than significant.

**Potential Impacts to Protected Oak Trees**

The Oak Tree Report (SB Horticulture, 2014) identified a total of three coast live oaks and one valley oak that qualify for protection under the Los Angeles County Oak Tree Ordinance (see Figure 8-6). One former heritage coast live oak was identified as deceased. The Proposed Project has generally avoided impacts to protected trees, but would require the removal of four protected oak trees because of their location in the landfill development area. This would represent a significant impact, requiring mitigation. Mitigation measure BR-15 would be implemented to address this; specifically, an oak tree permit would be acquired for removal of the qualifying oaks and all permit terms and conditions would be complied with. With mitigation, the impact would be less than significant.

**Mitigation Measure**

**BR-15** For unavoidable impacts to qualifying oak trees, an Oak Tree Permit application shall be submitted to the LADRP. All permit terms and conditions shall be complied with from the final permit issuance, including planting of replacement trees. An Oak Tree and Woodland Mitigation Plan which identifies the mitigation area shall be submitted to LADRP and approved prior to issuance of a grading permit for the Proposed Project that would disturb areas within the protected zone of any oak trees regulated by the County Oak Tree Ordinance. The site shall be assessed for oak woodlands, including scrub oaks, at the time of disturbance according to the County Oak Woodland Conservation and Management Plan, and the Oak Tree and Woodland Mitigation Plan would also address mitigation for oak woodland impacts, including scrub oaks. As appropriate, potential impacts to oak woodlands shall be mitigated by planting understory plants in the same area identified onsite for mitigation oaks pursuant to the Oak Tree Permit and Oak Tree and Woodland Mitigation Plan for the Proposed Project.

### 8.6.3.18 Potential Impacts through Conflicts with Habitat Conservation Plans or Other Conservation Plans

**Potential Impacts**

No federal HCPs or state Natural Community Conservation Plans would be affected by the Proposed Project. Other approved local, regional, or state HCPs in the vicinity of CCL were identified in the SCREMP, which addresses management of the Santa Clara River. The Santa Clara River is approximately 0.4 mile south of CCL. Potential impacts to biological resources or water quality in the Santa Clara River ecosystem have been addressed above, and no significant impacts are anticipated.

### 8.6.3.19 Potential Operation Impacts to Western Spadefoot from Detention Basin Management

**Potential Impacts**

Detention basins at CCL have the potential to support western spadefoot breeding. Since ongoing water and sediment removal is necessary to maintain detention capacity of basins, potential impacts could occur to western spadefoot eggs, tadpoles, or adults if present in detention basins during draining or cleanout operations. Loss of individuals or egg masses of this species from draining operations would represent a significant adverse impact, requiring mitigation. Take of adult or subadults during sediment removal would also represent a significant adverse impact. Mitigation measure BR-16 would be implemented to address this. Specifically, water would only be pumped using a screened operation to avoid uptake of spadefoot eggs, larvae, or adults; sediments would only be removed after surveys are

implemented to identify and relocate aestivating adults and subadults. With mitigation, the impact is anticipated to be less than significant.

**Mitigation Measure**

**BR-16** To avoid operational impacts to western spadefoot which may occur during intentional draining of detention basins, or sediment removal from detention basins, the following protocol would be implemented, under an approach coordinated with CDFW: (1) All drainage equipment would be new or used exclusively for detention basins on CCL to avoid transfer of Chytridiomycosis (i.e., chytrid fungus) or any other amphibian diseases or pathogens to detention basins on CCL from other sites; (2) pumping equipment intakes would be screened with fine mesh and would pump from deeper portions of the detention ponds to ensure that eggs, larvae, or adults of western spadefoot would not be entrained in pump apparatus; (3) at any given pumping event, only 80 percent of the volume (measured as depth at the deepest point of the detention basin) would be pumped, leaving pooled water of at least a 5-inch depth for any potential western spadefoot to complete its life cycle; and (4) sediment removal would only occur during the dry season, when ponded water is not present.

# 8.7 Mitigation Measures

Mitigation measures for biological resources are as described above for specific potential impacts.

Because the Proposed Project is proposed for implementation over an extended period of time, all impacts will not be realized instantaneously. Likewise, mitigation would generally be implemented to coincide with the time of the impacts. In the case of mitigation measures BR-1, BR-9, and BR-15, additional information is needed to support development of the details of proposed mitigation measures which can't be determined at this time, but will be available at the time of impacts and implementation of mitigation. In these cases, the project proponent is committing to the mitigation measures as indicated here, and will implement final mitigation measures consistent with specified plans which will require agency approval, including LADRP and CDFW. These plans include the following:

- Closure Revegetation Plan
- Rare Plant Relocation Plan
- Oak Tree and Oak Woodland Mitigation Plan

The plans will be developed consistent with performance criteria specified for these plans in the Draft Revegetation, Rare Plant Relocation, and Oak Tree Performance Criteria provided in Appendix E3 of this Partially Recirculated Draft EIR. Additional data which will support the development of these plans will include: precise incremental impacts to vegetation communities, rare plants, and oak trees and woodlands upon project implementation; final grade upon project completion including slope gradient and aspect; location and design of drainage features; sub- and top-soil covering depth upon project completion; soil characteristics of topsoil upon completion, including texture, pH, nutrient content, and other parameters; availability and adjacency of undisturbed habitats and conditions; and, extent of undisturbed rare plant populations by species and availability for population enhancement.

# 8.8 Significance After Mitigation

With mitigation, the Proposed Project would result in less than significant impacts to biological resources.


***LEGEND***

- Limit of Disturbance
- Project Boundary

**Qualifying Oak Tree Location**

- Coast Live Oak (*Quercus agrifolia*)*
- Valley Oak (*Quercus lobata*)*

N

0 0.125 0.25

Miles

**Figure 8-6.**
**Qualifying Oak Trees**
*Chiquita Canyon Landfill*
*Master Plan Revision*

# 8.9 Cumulative Impacts

## 8.9.1 Potential Cumulative Impacts

The Proposed Project is located in a subregion of Los Angeles County containing natural open spaces that continue to be rapidly developed for industrial, commercial, and residential land uses. The majority of the development is located in the valleys along major drainages. Castaic Creek, San Francisquito Creek, the Hasley drainages, and Santa Clara River Valley all have planned or approved development. The loss of the most abundant habitats (grassland, ruderal, and scrub) would potentially reduce the regional subpopulation numbers of sensitive species, which forage and breed in these open habitats. Although the Proposed Project will reduce the extent of some intact open habitats, mitigation measures have been proposed, which reduce the impacts to sensitive species that may use those habitats to levels below significant.

Open habitats also provide important foraging grounds for raptors. The development of the majority of the open habitats in the area could eventually reduce the raptor populations in the region; however, with mitigation for loss of grassland raptor habitat consisting of habitat set asides, this loss would be reduced. The Proposed Project would contribute to the incremental loss of these habitats, although the limited biological resources onsite would make its contribution minimal.

Cumulative projects in the region could eventually sever wildlife habitat connectivity. Streamside development along the majority of the drainages in the region could limit wildlife access to water sources, and development along the sections of the Santa Clara River could eventually block north-south movement between the Santa Susana Mountains south of the river and the Castaic Lake region to the north. Major movement corridors are known in the vicinity of CCL, the Santa Clara River and the Santa Monica-Sierra Madre Connection. Wildlife movement was not studied at CCL; the contribution of the CCL land to these corridor movement and linkage areas is unknown but could eventually be substantial following completion of the Proposed Project when the site is revegetated. Proposed mitigation measures would ensure that the Proposed Project's potential contribution to impacts associated with corridor movement and linkage areas are less than significant.

## 8.9.2 Mitigation Measures Required for Cumulative Impacts

Project-specific biological mitigation measures would reduce cumulative impacts. No additional mitigation measures to address potential cumulative impacts are required or proposed.

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CHAPTER 11

# Air Quality

## 11.1 Introduction

This chapter in the Partially Recirculated Draft Environmental Impact Report (EIR) provides a revised evaluation of the potential impacts to air quality associated with the Chiquita Canyon Landfill (CCL) Master Plan Revision (Proposed Project), including a brief description of the existing conditions, with an overview of the regulatory setting, climate and meteorology, existing air quality, and operational setting of the Proposed Project. The Proposed Project, with implementation of Project Design Measures, would generate combined construction and operational emissions of nitrogen oxides (NOx), reactive organic gases (ROG), particulate matter with aerodynamic diameter less than or equal to 10 microns ($PM_{10}$), and particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$) at levels which would indicate a potential for significant air quality impacts. Impacts associated with potential health risks, localized carbon monoxide (CO) emissions from increased vehicle trips, emissions of sulfur dioxide ($SO_2$), and odors generated by the Proposed Project, with the implementation of Project Design Measures, would be less than significant. This chapter presents the impact assessment methodology, potential impacts of the Proposed Project, and proposed mitigation measures.

## 11.2 Methodology

Several methodologies were developed and used to estimate emissions and perform dispersion modeling for the Proposed Project. Emissions were estimated for the incremental increase in activities associated with the Proposed Project and were not calculated for activity levels associated with the existing landfill. The analysis conservatively summed the emissions that would be generated from anticipated construction activities with the emissions that would be generated from operation of the Proposed Project to identify the future project year with the highest potential emissions. The values estimated for the project years with the highest potential combined emissions were compared to the mass emission thresholds established as California Environmental Quality Act (CEQA) significance criteria by the South Coast Air Quality Management District (SCAQMD), and used in further evaluation of potential air quality and acute health risk impacts. Chronic health risk impacts were evaluated based on 30-year average emissions for the 30 individual highest emission years. Other significance thresholds used in evaluating project impacts are presented in Section 11.6.2.

Methodologies were developed and used for the following:

- Construction Emission Calculations, including estimation of emissions associated with construction-related equipment exhaust, on-road vehicle exhaust, and fugitive dust. Emissions would be generated due to construction of the new entrance, landfill waste modules, and composting facility.
- Operation Emission Calculations, including operation-related equipment exhaust, on-road vehicle exhaust, stationary source exhaust, fugitive dust, fugitive landfill gas (LFG), and compost facility process emissions. Operational activities for the Proposed Project would include onsite and offsite vehicle trips, including waste haul truck trips, operation of the flares, equipment use to place and cover waste in the landfill modules, and equipment use and processes to operate the composting facility.
- Health Risk Assessment (HRA) for potential project-related emissions of toxic air contaminants (TAC), including dispersion modeling.
- CO Hotspot Analysis.

Complete methodology details are included in Appendix H-1.

As part of the methodology, current emission reduction measures implemented on a daily basis at the landfill were identified, and best management practices (BMP) were developed to reduce emissions during construction, operation, and composting. These emission reduction measures and BMPs, listed in Table 11-1, would be incorporated into the Proposed Project as Project Design Measures. Documented emission reduction benefits are referenced and reflected in the construction and operation emissions calculations provided in Appendix H-2.

Table 11-1. Current Emission Reduction Measures and Best Management Practices Incorporated as Project Design Measures

*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

**Current Emission Reduction Measures:** CCL currently implements the following emissions reductions measures on an ongoing basis, and these measures would continue to be implemented during construction and operation of the Proposed Project.

- Onsite traffic is managed.
- Engine-powered equipment is properly maintained.
- Onsite vehicles are routed along the most direct routes.
- Electrically powered equipment is used to the extent feasible.
- Speed limits of 15 mile per hour (mph) on paved roads and 10 mph on unpaved roads are enforced.
- Permanent onsite haul roads are paved, to the extent feasible.
- Temporary unpaved roads are surfaced with low-dust courses of material.
- Roads are watered 4 to 7 times daily, dependent on conditions, including weather.
- Active sites of soil disturbance are watered 4 to 7 times daily, dependent on conditions, including weather.
- Soil stabilizers are used in areas with long-term exposure of disturbed or un-vegetated surfaces (e.g., stockpiles).
- Trucks hauling dirt, sand, or other loose materials for site construction projects on public roadways are covered or maintain at least 2 feet of free board in accordance with the requirements of California Vehicle Code Section 23114.
- Construction access roads are paved at least 100 feet onto the site from the main road.
- Where feasible, other construction roads, not covered by the above measures and having a daily traffic volume of 50 vehicular trips, are paved. Where paving is infeasible, these roads are watered.
- Disturbed areas are covered with erosion control materials if needed.
- SCAQMD-approved street sweepers are used on all paved haul roads onsite as needed during rainy periods to reduce mud, and during dry periods to reduce dust.

**Construction Emission Reduction BMPs:**

- The construction equipment, not owned by CCL, would be equipped with engines meeting California Air Resources Board (CARB) requirements for a large fleet at the time of construction (13 *California Code of Regulations* [CCR] 2449).
- The construction equipment, not owned by CCL, would be equipped with engines meeting Tier 4f emission standards after project year 2020.
- Trucks would be prevented from idling longer than 5 minutes, to the extent feasible.
- Construction equipment idling times would be limited, and excessive use would be prevented, to the extent feasible.
- Use of construction equipment would be suspended during Stage 2 and 3 smog alerts.
- To reduce/minimize construction-related fugitive dust, water would be applied 4 to 7 times daily, dependent on weather, to disturbed areas within the construction site.

Table 11-1. Current Emission Reduction Measures and Best Management Practices Incorporated as Project Design Measures
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

- Fugitive dust from vehicle travel on unpaved roads would be controlled through the application of water 4 to 7 times daily, dependent on weather, the application of soil stabilizers, and the enforcement of a 15-mph speed limit.

**Operation Emissions Reduction BMPs:**

- Off-road diesel equipment purchased by CCL for operation of the Proposed Project (used for additional waste received) would be equipped with engines meeting Tier 4f emission standards.
- Unnecessary truck and equipment idling would be limited to less than 5 minutes, to the extent feasible.
- Use of off-road diesel equipment would be suspended during Stage 2 and 3 smog alerts (SCAQMD, 1993), to the extent feasible.
- Fugitive dust BMPs for vehicle travel on paved roads, vehicle travel on unpaved roads, and soil disturbance would be the same as described above for construction.
- Operate the landfill to improve LFG collection efficiency to a site-wide average of 85 percent through application of a combination of daily cover, intermediate cover, and final cover to provide a beneficial improvement in ongoing LFG collection efficiency.[1]
- The existing, approved landfill gas-to-energy (LFGTE) plant would be optimized to use collected LFG as fuel to produce electricity and to minimize flaring of collected LFG.

**Composting Emissions Reductions BMPs:**

- Green waste composting piles would be covered with at least 6 inches of finished compost within 24 hours of initial pile formation.
- Piles would not be turned for the first 7 days of active phase composting.
- For the first 15 days of initial pile formation, and within 6 hours before turning, the top half of the pile would be kept wet to a depth of at least 3 inches.
- Covered, aerated composting system would be equipped with an SCAQMD-approved emission control system (e.g., thermal oxidizer (T/O), bio-filtration) (SCAQMD, 2015a).
- Composting facility would implement a site-specific Odor Impact Minimization Plan (OIMP).

# 11.3 Regional Setting

## 11.3.1 Geography and Topography

CCL, located in the northwestern portion of unincorporated Los Angeles County, is approximately 3 miles west of the intersection of Interstate 5 (I-5) and State Route 126 (SR-126). The site is located in Section 15, Township 4 North, Range 17 West, San Bernardino Baseline and Meridian. The site latitude and longitude are 34°25'N and -118°39'W, respectively. The landfill is located within a series of canyons that make up the current and future modules for disposed waste. These canyons are oriented in a north-northeast to south-southwest manner, and broaden to merge with the Santa Clara River floodplain to the south. CCL is located in Los Angeles County, within the planning area of the City of Santa Clarita, but

[1] This BMP is based on the SCS Engineers Memorandum dated November 2016 (SCS, 2016a), presented in Appendix H-3, which provides an evaluation of the benefits of cover modifications to improve LFG collection efficiency at CCL. Improvements to the existing site-wide LFG collection efficiency are modeled using a methodology developed by the Solid Waste Industry for Climate Solutions (SWICS, 2009), which allows for adjustment of collection efficiency within a range of values by cover type. By optimizing the landfill surface area converted to intermediate and final (impermeable membrane) cover, ongoing LFG collection efficiency can be increased at the landfill from current levels (estimated at 81.7 percent) to 85 percent, and maintained at this level by management of cover, reducing fugitive emissions of GHGs and TACs.

outside the city limits and sphere of influence. The landfill site is also located in the Santa Clarita Valley Area Plan of the Los Angeles County General Plan, and in the Castaic Area Community Standards District.

Access to the site is from SR-126 (Henry Mayo Drive), a four-lane paved highway running east-west along the southern boundary of CCL. Access to CCL at SR-126 includes left-turn and right-turn deceleration lanes for traffic entering the site. A detailed discussion of the traffic conditions and the circulation network that affect air quality conditions is presented in Chapter 10.0, Traffic and Transportation, in the Original Draft EIR.

Figure 11-1 shows the various land use/land classifications surrounding the landfill. As shown on the figure, low intensity to high intensity developed land is located immediately northwest, northeast, and east of the landfill, indicating residential and commercial use areas.

## 11.3.2 Climate and Meteorology

The climate of the Santa Clarita Valley region is characterized as Mediterranean. Winters are generally cool and moderately wet, while summers tend to be hot and dry, with occasional subtropical moisture entering the area. Extreme temperatures are moderated by the region's proximity to the Pacific Ocean, causing small daily and seasonal fluctuations. Poor pollutant dispersion conditions result from the persistent temperature inversions found on most days.

Climatological data for CCL were gathered from nearby weather stations located 6 to 18 miles from the site. The temperature ranges from a minimum of 39 degrees Fahrenheit (°F) in December and January to a maximum of 95°F in July, with an annual mean temperature of 63.5°F. Rainfall averages about 14 inches annually, with approximately 90 percent of the precipitation occurring from November through April. There are only about 40 days out of the year when precipitation is equal to or greater than 0.01 inch (City of Santa Clarita, 1997).

Winds are an important consideration for landfills and composting facilities, because they affect the dispersal of contaminants associated with waste management. For example, winds govern the rate and direction of odor diffusion. Winds may also blow fugitive dust from disturbed soil.

The meteorological data used for the CCL air quality impact analysis were measured at the SCAQMD-operated monitoring station nearest the landfill. Figure 11-2 presents wind roses showing wind patterns at the Santa Clarita station, located approximately 7 miles southeast of CCL. Five consecutive years of data, 2008 through 2012, were used for the analysis. These publically available data were obtained from the SCAQMD website. These data show that winds in the project area blow primarily from the southeast.

A wind rose gives a succinct but information-laden view of how wind speed and direction are typically distributed at a particular location. Presented in a circular format, the wind rose shows the frequency of winds blowing from particular directions. The length of each "spoke" around the circle is related to the frequency of time that the wind blows from a particular direction. Each concentric circle represents a different frequency, emanating from zero at the center to increasing frequencies at the outer circles. Colors are used to illustrate the wind speeds for the plotted wind directions and frequencies.

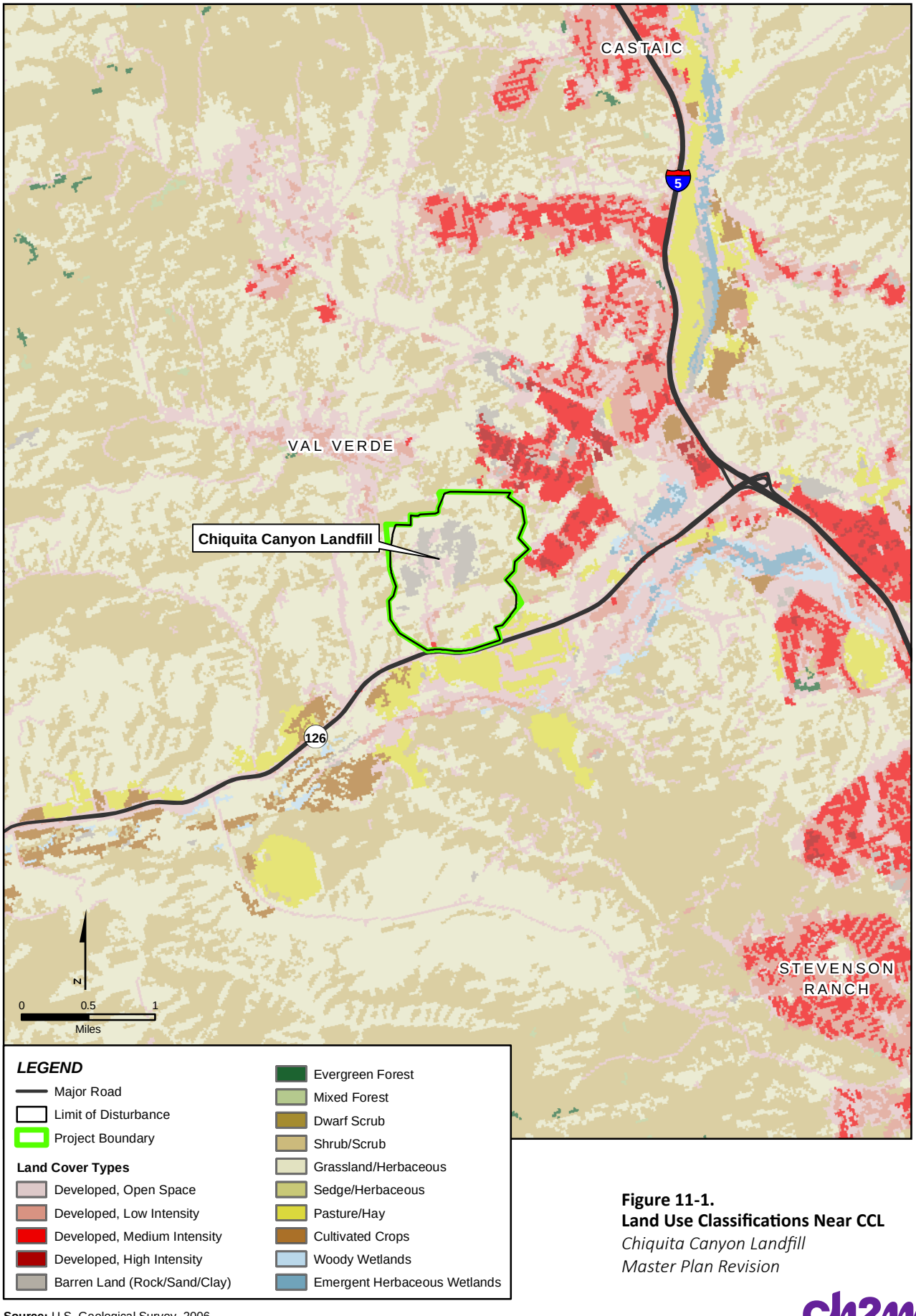
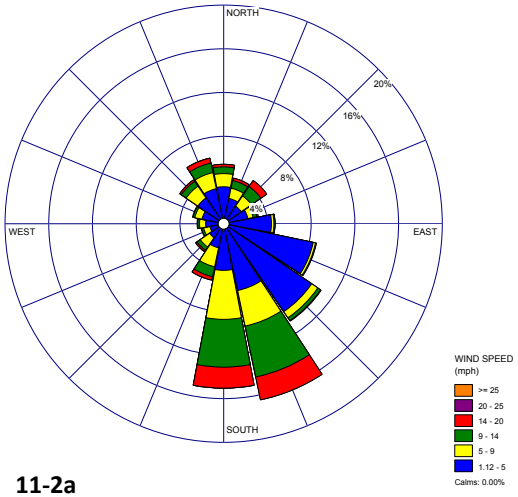
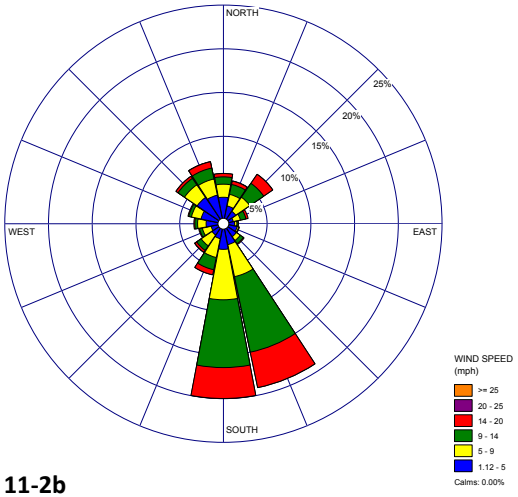



**Figure 11-1.**
**Land Use Classifications Near CCL**
*Chiquita Canyon Landfill*
*Master Plan Revision*

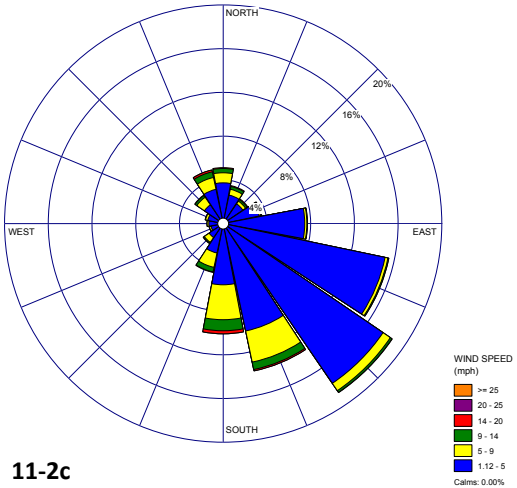
**Source:** U.S. Geological Survey, 2006



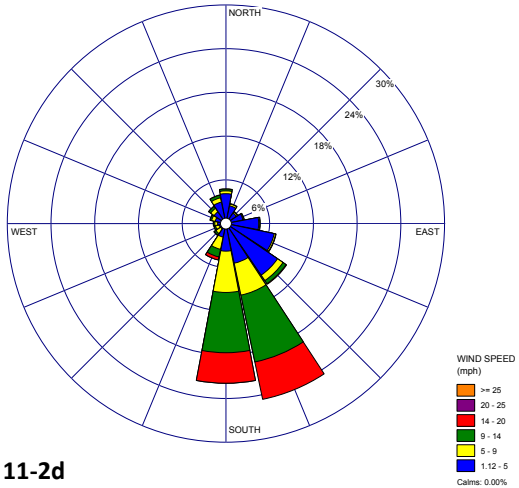

**11-2a**
**5-Year Wind Rose (2008-2012)**




**11-2b**
**Daytime (8am to 8pm) 5-Year Wind Rose**




**11-2c**
**Nighttime (8pm to 8am) 5-Year Wind Rose**




**11-2d**
**June to August 5-Year Wind Rose**

**Figure 11-2.**
**SCAQMD Santa Clarita Monitoring Station Wind Roses**
*Chiquita Canyon Landfill*
*Master Plan Revision*

## 11.3.3 Existing Air Quality

### 11.3.3.1 Attainment Status

The Proposed Project would be located in Los Angeles County, in the South Coast Air Basin (Basin). SCAQMD operates a network of ambient air quality monitoring stations located throughout the Basin to characterize the air quality environment. Pollutants monitored include ozone, CO, nitrogen dioxide ($NO_2$), $PM_{10}$, $PM_{2.5}$, $SO_2$, and lead. Depending on whether or not the air quality standards are met or exceeded, an area is classified as being in "attainment" or "nonattainment" for each pollutant. The Basin currently exceeds state and federal ambient air quality standards for several pollutants and is required to implement strategies that would reduce the pollutant levels to achieve the recognized ambient standards. The area where the Proposed Project is located is designated as nonattainment for the state ozone, $PM_{10}$, and $PM_{2.5}$ standards. The area is also designated as nonattainment for the federal 8-hour ozone, $PM_{2.5}$, and lead standards. Table 11-2 shows the current attainment status for regulated air pollutants in the air basin.

Table 11-2. Attainment Designations in the Proposed Project Area
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Pollutant | State Designation | Federal Designation |
|---|---|---|
| Ozone | 1-hour: Nonattainment<br>8-hour: Nonattainment | 1-hour: Nonattainment (Extreme)[a]<br>8-hour: Nonattainment (Extreme)[b] |
| CO | 1-hour: Attainment<br>8-hour: Attainment | 1-hour: Attainment (Maintenance)<br>8-hour: Attainment (Maintenance) |
| $NO_2$ | 1-hour: Attainment<br>Annual: Attainment | 1-hour: Unclassifiable/Attainment<br>Annual: Attainment (Maintenance) |
| $SO_2$ | 1-hour: Attainment<br>24-hour: Attainment | 1-hour: Designation Pending (Expect Unclassifiable/Attainment)<br>24-hour: N/A |
| $PM_{10}$ | 24-hour: Nonattainment<br>Annual: Nonattainment | 24-hour: Attainment (Maintenance)<br>Annual: N/A |
| $PM_{2.5}$ | 24-hour: N/A<br>Annual: Nonattainment | 24-hour: Nonattainment<br>Annual: Nonattainment (Serious) |
| Lead | Attainment | Nonattainment |
| $H_2S$; Sulfates | Unclassified; Attainment | No federal standard; No federal standard |

[a] The 1-hour ozone standard (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard based on 2008-2010 data and is still subject to anti-backsliding requirements.

[b] The 1997 8-hour ozone standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the revoked 1997 ozone standard is still subject to anti-backsliding requirements. The Basin is designated as extreme nonattainment for the 1997 and 2008 8-hr standards; the designation for the 2015 8-hour standard is still pending.

Notes:

$H_2S$ = hydrogen sulfide
N/A = not applicable
ppm = parts per million

Source: SCAQMD, 2016a

### 11.3.3.2 Air Monitoring Data

Ambient air quality data were taken from data published by CARB (on the Aerometric Data Analysis and Management [ADAM] website) and United States Environmental Protection Agency (EPA) (on the AirData website). Ambient concentrations of ozone, $NO_2$, CO, $SO_2$, $PM_{10}$, and $PM_{2.5}$ are recorded at monitoring stations located throughout the Basin. Three of the nearest monitoring stations were used to gather information regarding the air quality around CCL: Burbank – West Palm Avenue, Reseda, and Santa Clarita stations. The Santa Clarita station is the closest to the project site, approximately 7 miles

from the landfill entrance. $SO_2$ and $PM_{2.5}$ monitoring data are not available at the Santa Clarita station, therefore, the Burbank and Reseda stations were used for $SO_2$ and $PM_{2.5}$ data, respectively. A summary of the maximum monitored criteria pollutant concentrations for 2009 to 2014 is presented in Table 11-3.

Table 11-3. Summary of Monitoring Data – Maximum Concentrations
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Pollutant | Averaging Time | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|
| CO (ppm) | 1-hour[a] | 1.8 | 1.5 | 1.2 | 1.3 | 1.3 | 2.9 |
| | Days of State Exceedances | 0 | 0 | 0 | 0 | 0 | 0 |
| | Days of Federal Exceedances | 0 | 0 | 0 | 0 | 0 | 0 |
| | 8-hour[b] | 1.35 | 1.15 | 0.79 | 0.82 | * | * |
| | Days of State Exceedances | 0 | 0 | 0 | 0 | 0 | 0 |
| | Days of Federal Exceedances | 0 | 0 | 0 | 0 | 0 | 0 |
| Ozone (ppm) | 1-hour[b] | 0.140 | 0.126 | 0.144 | 0.134 | 0.134 | 0.137 |
| | Days of State Exceedances | 57 | 18 | 31 | 45 | 30 | 32 |
| | 8-hour[b] | 0.122 | 0.105 | 0.122 | 0.112 | 0.104 | 0.110 |
| | Days of State Exceedances | 77 | 41 | 52 | 83 | 58 | 65 |
| | Days of Federal Exceedances | 64 | 23 | 31 | 57 | 40 | 45 |
| $NO_2$ (ppm) | Annual Average[b] | 0.015 | 0.014 | 0.013 | 0.014 | 0.014 | 0.013 |
| | Federal Exceedances | N | N | N | N | N | N |
| | 1-hour[b] | 0.060 | 0.059 | 0.060 | 0.066 | 0.065 | 0.057 |
| | Days of State Exceedances | 0 | 0 | 0 | 0 | 0 | 0 |
| $SO_2$ (ppm) | 24-hour[b] | 0.003 | 0.004 | 0.002 | 0.002 | 0.002 | * |
| | Days of State Exceedances | 0 | 0 | 0 | 0 | 0 | * |
| | 1-hour[a] | 0.013 | 0.015 | 0.009 | 0.007 | 0.011 | 0.005 |
| | Days of State Exceedances | 0 | 0 | 0 | 0 | 0 | 0 |
| $PM_{10}$ ($\mu g/m^3$) | Annual Arithmetic Mean[b] | 23.9 | 21.0 | 20.9 | 17.9 | 21.6 | 23.2 |
| | State Exceedances | Y | N | N | N | Y | Y |
| | 24-hour[b] | 56 | 40 | 45 | 37 | 43 | 47 |
| | Days of State Exceedances | 1 | 0 | 0 | 0 | 0 | 0 |
| | Days of Federal Exceedances | 0 | 0 | 0 | 0 | 0 | 0 |
| $PM_{2.5}$ ($\mu g/m^3$) | Annual Arithmetic Mean[a] | 11.38 | 10.17 | 10.2 | 10.5 | 9.9 | 9.7 |
| | State Exceedances | N | N | N | N | N | N |
| | Federal Exceedances | N | N | N | N | N | N |
| | 24-hour[a] | 39.9 | 40.7 | 39.8 | 41.6 | 41.8 | 27.2 |
| | Federal Exceedances | N | N | N | N | N | N |

[a] Source: EPA, 2015a.

[b] Source: CARB, 2015.

Monitoring data were taken from the Santa Clarita Monitoring Station monitor, with the exception of $SO_2$ data, which were taken from the Burbank station, and $PM_{2.5}$ data, which were taken from the Reseda station.

Hydrogen sulfide, vinyl chloride, and visibility-reducing particles are not monitored.

$\mu g/m^3$ = microgram(s) per cubic meter

* = Insufficient data available to determine the value

N/A = not applicable

N = No

Y = Yes

**Ozone**

Ozone is an end product of complex reactions between ROG and NOx in the presence of intense ultraviolet radiation. In the South Coast Air Basin, ROG and NOx emissions from millions of vehicles and stationary sources, in combination with daytime wind flow patterns, mountain barriers, a persistent temperature inversion, and intense sunlight, result in high ozone concentrations.

Short-term and long-term exposure to ozone is a public health concern. Exposure to ozone produces alterations in respiration, resulting in shallow, rapid breathing, and a decrease in pulmonary performance. Not only does ozone affect breathing patterns, exposure can also result in increased susceptibility to infections, inflammation of lung tissue, and immunological changes. In addition, ozone can cause substantial damage to leaf tissues of crops and natural vegetation, and damage to many building materials by acting as a chemical-oxidizing agent. For the purpose of state and federal air quality planning, the Basin is designated as a nonattainment area for ozone.

Table 11-3 shows the maximum ozone levels reported at the Santa Clarita monitoring station during the period beginning in 2009 and ending in 2014, as well as the number of days in which the state and federal standards were exceeded. Both the state and federal ozone standards are based on an 8-hour averaging period. The state limit is 0.07 part per million (ppm) and up until October 1, 2015, the federal limit was 0.075 ppm, at which time it was reduced to 0.070 ppm. State standards also include a 1-hour limit of 0.09 ppm. The data show that the state and federal ozone air quality standards were exceeded in all 6 years. Los Angeles County is considered a nonattainment area for ozone on both the state and federal levels.

**Nitrogen Dioxide**

Atmospheric $NO_2$ is formed primarily from reactions between nitric oxide (NO) and oxygen or ozone. NO is formed during high temperature combustion processes (for example, combustion of fuels) when the nitrogen and oxygen in the combustion air combine. Although NO is much less harmful than $NO_2$, it can be converted to $NO_2$ in the atmosphere within a matter of hours, or even minutes, under certain conditions.

$NO_2$ acts as an acute respiratory irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, $NO_2$ is only potentially irritating. There is some indication of a relationship between $NO_2$ and pulmonary fibrosis. Some increase in bronchitis in young children (2 to 3 years of age) has been observed at concentrations below 0.3 ppm.

Table 11-3 shows the $NO_2$ levels reported at the Santa Clarita monitoring station during the period beginning in 2009 and ending in 2014. No exceedances of the state or federal $NO_2$ standards were recorded during this period.

**Carbon Monoxide**

CO is a product of incomplete combustion, principally from automobiles and other mobile sources of pollution. In many areas of California, CO emissions from wood-burning stoves and fireplaces can also be measurable contributors to high ambient levels of CO. Industrial sources typically contribute less than 10 percent of ambient CO levels. Peak CO levels typically occur during winter months, due to a combination of higher emission rates and stagnant weather conditions.

There are no direct toxic effects associated with inhaled CO. CO levels are a public health concern because this pollutant competes with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin, reducing the rate at which oxygen is transported in the blood stream. Both the cardiovascular system and the central nervous system can be affected when 25 to 40 percent of the hemoglobin in the blood stream is bound to CO rather than to oxygen.

Table 11-3 shows the CO levels reported at the Santa Clarita monitoring station during the period beginning in 2009 and ending in 2014, as well as the number of days on which the state and federal standards were exceeded. Both the state and federal standards include a 1-hour (20 ppm and 35 ppm, respectively) and an 8-hour (9 ppm for both) averaging time. Available monitoring data indicate no exceedances occurred between 2009 and 2014 at the Santa Clarita station.

**Sulfur Dioxide**

$SO_2$ is produced when any sulfur-containing fuel is burned. It is also emitted by chemical plants that treat or refine sulfur or sulfur-containing chemicals. Natural gas contains negligible sulfur, while fuel oils contain larger amounts. Because of the complexity of the chemical reactions that convert $SO_2$ to other compounds (such as sulfates), peak concentrations of $SO_2$ occur at different times of the year in different parts of California, depending on local fuel characteristics, weather, and topography.

Gaseous $SO_2$ can cause breathing difficulty for people with asthma who are active outdoors, while long-term exposures can cause respiratory illness and aggravate existing heart disease. $SO_2$ also reacts with other chemicals in the air to form sulfate particles. These particles can gather in the lungs and are associated with increased respiratory symptoms and disease, difficulty in breathing, and premature death. In addition to these physical effects, $SO_2$ is a contributor to acid rain and accelerates the decay of paints and building materials, including irreplaceable monuments, statues, and sculptures.

Table 11-3 shows the $SO_2$ levels reported at the Burbank monitoring station during the period beginning in 2009 and ending in 2014. No exceedances occurred between 2009 and 2014 at the Burbank monitoring station.

**Coarse Particulates ($PM_{10}$)**

Particulates in the air are caused by a combination of wind-blown fugitive dust; particles emitted from combustion sources (usually carbon particles); and organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, sulfur oxide (SOx), and NOx. In 1984, CARB adopted standards for $PM_{10}$ and phased out the total suspended particulate (TSP) standards that had previously been in effect. $PM_{10}$ standards were substituted for TSP standards because $PM_{10}$ corresponds to the size range of inhalable particulates related to human health. In 1987, EPA also replaced national TSP standards with $PM_{10}$ standards. $PM_{10}$ is usually found near roadways and dust-producing industrial operations.

$PM_{10}$ can have damaging effects on health by getting deep into lungs and interfering with the body's mechanism for clearing the respiratory tract; some particles may also get into the bloodstream. Exposure to particulate matter is linked to a variety of problems including aggravated asthma, increased respiratory symptoms, decreased lung function, chronic bronchitis, irregular heartbeat, nonfatal heart attacks, and premature death in people with heart or lung disease. $PM_{10}$ can also be carried over long distances by wind and settle on ground or water, increasing the acidity of lakes and rivers, changing nutrient balance in coastal waters and river basins, depleting soil nutrients, damaging sensitive forests and farm crops, and impacting ecosystem diversity.

Table 11-3 shows the $PM_{10}$ levels reported at the Santa Clarita monitoring station during the period beginning in 2009 and ending in 2014, as well as the number of days in which the state and federal standards were exceeded. Annual and 24-hour state standards were exceeded in 2009, and the state annual standard was also exceeded in 2013 and 2014. The federal 24-hour standard was not exceeded between 2009 and 2014.

**Fine Particulates ($PM_{2.5}$)**

Fine particulates in the air are caused by a combination of particles emitted from combustion sources (usually carbon particles), and organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, SOx, and NOx. In 1997, EPA established 24-hour and annual arithmetic mean standards

for $PM_{2.5}$. EPA completed its designation of $PM_{2.5}$ attainment and nonattainment areas in 2004. $PM_{2.5}$ requirements are currently in full effect.

$PM_{2.5}$ can have damaging effects on health by getting deep into lungs and interfering with the body's mechanism for clearing the respiratory tract; some particles may also get into the bloodstream. Exposure to particulate matter is linked to a variety of problems including aggravated asthma, increased respiratory symptoms, decreased lung function, chronic bronchitis, irregular heartbeat, nonfatal heart attacks, and premature death in people with heart or lung disease. $PM_{2.5}$ is also a major cause of reduced visibility.

The Santa Clarita monitoring station does not monitor for $PM_{2.5}$ levels; therefore, the $PM_{2.5}$ data were from the Reseda station. Table 11-3 shows the $PM_{2.5}$ levels reported at the Reseda monitoring station during the period beginning in 2009 and ending in 2014, as well as the number of exceedances of the state and federal standards. The $PM_{2.5}$ state and federal standards were not exceeded at this station between 2009 and 2014.

# 11.4 Regulatory Setting

Air quality management in California is governed by the federal and California Clean Air Acts (CAA) and the California Health and Safety Code. Several levels of government have adopted specific regulations that limit emissions from stationary combustion sources, some of which would be applicable to this project. The agencies having authority for this project are shown in Table 11-4. The applicable federal, state, and local laws, ordinances, regulations, and standards, and compliance with these requirements are discussed in more detail in the following sections.

Table 11-4. Air Quality Agencies
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Agency | Authority | Address |
|---|---|---|
| EPA Region 9 | Regulatory oversight | EPA Region 9<br>75 Hawthorne Street<br>San Francisco, CA 94105<br>(415) 744-1259 |
| CARB | Regulatory oversight | California Air Resources Board<br>2020 L Street<br>Sacramento, CA 95814<br>(916) 322-6026 |
| SCAQMD | Permit issuance, enforcement | South Coast Air Quality Management District<br>21865 Copley Drive<br>Diamond Bar, CA 91765<br>(909) 396-2664 |

## 11.4.1 Federal Regulations and Standards

### 11.4.1.1 United States Environmental Protection Agency

EPA is responsible for implementing and enforcing, on a national level, the requirements of many of the country's environmental and hazardous waste laws. California is under the jurisdiction of EPA Region 9, which has its offices in San Francisco. Region 9 is responsible for the local administration of EPA programs for California, Arizona, Nevada, Hawaii, and certain Pacific trust territories. EPA's activities relative to the California air pollution control program focus principally on reviewing California's submittals for the State Implementation Plan (SIP). The SIP is required by the federal CAA to demonstrate

how all areas of the state will meet the National Ambient Air Quality Standards (NAAQS) within the federally specified deadlines (42 *United States Code* §7409, 7411).

#### 11.4.1.2 National Ambient Air Quality Standards

The federal CAA requires EPA to establish NAAQS for the criteria pollutants: ozone, $NO_2$, CO, $SO_2$, $PM_{10}$, $PM_{2.5}$, and airborne lead. There are two types of standards, primary and secondary standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against visibility impairment and damage to animals, crops, vegetation, and buildings.

Regulatory agencies compare measured ambient air concentrations to the NAAQS to evaluate ambient air quality conditions, and determine the attainment status of designated geographic areas. EPA designates areas as attainment, nonattainment, or unclassified for individual criteria pollutants depending on whether the areas achieve (i.e., attain) the applicable NAAQS for each pollutant. Nonattainment areas are those where measured background concentrations for air pollutants are greater than the maximum allowable ambient concentrations defined in the NAAQS. States (or areas within states) with ambient air quality concentrations that do not meet the NAAQS are required to develop and maintain a plan for attainment, or SIP. Sources in nonattainment areas must meet stringent pollution control requirements and obtain permits under the federal New Source Review (NSR) program. In areas that already meet the NAAQS (attainment areas), the federally regulated Prevention of Significant Deterioration (PSD) permitting program is designed to ensure air quality is not allowed to significantly deteriorate, while still allowing a margin for future industrial growth.

Each NAAQS consists of two parts: an allowable concentration of a pollutant, and an averaging time over which the concentration is to be measured. Allowable concentrations are based on the results of studies of the effects of the pollutants on human health, crops and vegetation, and, in some cases, damage to paint and other materials. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposures to a high concentration for a short time (1 hour, for instance), or to a relatively lower average concentration over a longer period (8 hours, 24 hours, or 1 month). For some pollutants, there is more than one air quality standard, reflecting both short-term and long-term effects. Table 11-5 presents the NAAQS for selected pollutants.

The federal CAA, as most recently amended in 1990, provides EPA with the legal authority to regulate air pollution from stationary sources such as CCL. EPA has promulgated the following stationary source regulatory programs to implement the requirements of the 1990 CAA. Depending on the operation and emissions of the project, one or more of the programs may be applicable to operation of the Proposed Project:

- Standards of Performance for New Stationary Sources (NSPS)
- National Emission Standards for Hazardous Air Pollutants (NESHAP)
- PSD
- NSR
- Title V: Operating Permits

#### 11.4.1.3 Conformity

The federal CAA stipulates that the federal government may not engage, support, or provide financial assistance or approve licensing or permitting for any activity not conforming to the applicable SIP. EPA has issued two types of conformity regulations—transportation conformity rules that apply to transportation plans and projects, and general conformity rules that apply to all other federal actions. No federal action is needed for the Proposed Project. Therefore, a conformity analysis for the Proposed Project is not required.

Table 11-5. Ambient Air Quality Standards

*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Pollutant | Averaging Time | CAAQS[a] | NAAQS[b] | |
|---|---|---|---|---|
| | | | Primary[c] | Secondary[d] |
| Ozone | 8 hours[e] | 0.070 ppm | 0.070 ppm | 0.070 ppm |
| | 1 hour | 0.09 ppm | — | — |
| $PM_{10}$ | Annual Arithmetic Mean | 20 µg/m$^3$ | — | — |
| | 24 hours | 50 µg/m$^3$ | 150 µg/m$^3$ | 150 µg/m$^3$ |
| $PM_{2.5}$ | Annual Arithmetic Mean[f] | 12 µg/m$^3$ | 12 µg/m$^3$ | 15 µg/m$^3$ |
| | 24 hours | — | 35 µg/m$^3$ | 35 µg/m$^3$ |
| CO | 8 hours | 9.0 ppm | 9 ppm | — |
| | 1 hour | 20 ppm | 35 ppm | — |
| $NO_2$ | Annual Arithmetic Mean | 0.030 ppm | 0.053 ppm | 0.053 ppm |
| | 1 hour | 0.18 ppm | 0.100 ppm[g] | — |
| $SO_2$ | 24 hours | 0.04 ppm | — | — |
| | 3 hours | — | — | 0.5 ppm |
| | 1 hour | 0.25 ppm | 0.075 ppm[h] | — |
| Lead[i] | Calendar Quarter | — | 1.5 µg/m$^3$ | 1.5 µg/m$^3$ |
| | Rolling 3-month Average | — | 0.15 µg/m$^3$ | 0.15 µg/m$^3$ |
| | 30-day Average | 1.5 µg/m$^3$ | — | — |
| Visibility-reducing Particles[j] | 8 hours | See Footnote j | — | — |
| Sulfates | 24 hours | 25 µg/m$^3$ | — | — |
| Hydrogen Sulfide | 1 hour | 0.03 ppm | — | — |
| Vinyl Chloride[i] | 24 hours | 0.01 ppm | — | — |

[a] California standards for ozone, CO (except 8-hour Lake Tahoe), $SO_2$ (1-hour and 24-hour), $NO_2$, $PM_{10}$, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

[b] National standards other than ozone, particulate matter, and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For $PM_{10}$, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m$^3$ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[d] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[e] On October 1, 2015, EPA reduced the federal primary and secondary 8-hour ozone standards from 0.075 ppm to 0.070 ppm.

[f] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m$^3$ to 12.0 µg/m$^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m$^3$, as was the annual secondary standard of 15 µg/m$^3$. The existing 24-hour $PM_{10}$ standards (primary and secondary) of 150 µg/m$^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[g] To attain the 1-hour $NO_2$ national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.100 ppm (100 parts per billion [ppb]).

[h] On June 2, 2010, a new 1-hour $SO_2$ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.075 ppm (75 ppb).

[i] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined.

[j] In 1989, CARB converted the general statewide 10-mile visibility standard to an instrumental equivalent of "extinction of 0.23 per kilometer."

Notes:

CAAQS = California Ambient Air Quality Standards

Sources: EPA, 2015b, CARB, 2016

## 11.4.2 State Regulations and Standards

CARB oversees California air quality policies. California Ambient Air Quality Standards (CAAQS) were first established in 1969 pursuant to the Mulford-Carrell Act. CAAQS are generally more stringent than the NAAQS and include four additional pollutants: sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Relevant CAAQS are listed in Table 11-5.

The California CAA, approved in 1988, requires local air districts in nonattainment areas to prepare an Air Quality Management Plan (AQMP, part of the SIP) to achieve compliance with the CAAQS. CARB has ultimate responsibility for the SIP for nonattainment pollutants but relies on each local air district to adopt mandatory statewide programs and provide additional tailored strategies for sources under their local jurisdiction. The SIPs required by federal law are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), district rules, state regulations, and federal controls. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB forwards SIP revisions to EPA for approval and publication in the *Federal Register*.

The California Department of Resources Recycling and Recovery (CalRecycle) and the California Integrated Waste Management Board (CIWMB) oversee regulatory requirements for compostable materials handling operations and facilities, including issuance of compostable materials handling facility permits by local enforcement agencies. In addition to recordkeeping and reporting, compostable material handling facilities are required to implement a site-specific OIMP. OIMPs provide guidance to onsite personnel, including the following:

- An odor monitoring protocol describing proximity of possible odor receptors and methods for assessing odor impacts at receptor locations
- A description of meteorological conditions affecting migration of odors offsite, including seasonal variations that affect wind speed and direction
- A complaint response protocol
- A description of design considerations and ranges and of optimal operations to minimize odors
- A description of operating procedures to minimize odors

The OIMP must be reviewed annually and revised if needed. If the enforcement agency determines that the OIMP is being followed, but odor impacts are still occurring, the agency may require the operator to take additional reasonable and feasible measures to minimize odors (14 *California Code of Regulations* [CCR] 17863).

## 11.4.3 Local Regulations and Standards

### 11.4.3.1 SCAQMD Air Quality Management Plan

SCAQMD is the local agency responsible for ensuring federal and state ambient air quality standards are attained in the Proposed Project area. Periodically, SCAQMD prepares an AQMP to be submitted for inclusion in the SIP. The most recent EPA-approved South Coast SIPs are the *Final 1997 Air Quality Management Plan* (SCAQMD, 1997) and the *Final 1999 Amendment to the 1997 Ozone SIP Revision for the South Coast Air Basin* (SCAQMD, 1999).

Pending EPA approval, the Final 2012 AQMP was adopted by the SCAQMD Board on December 7, 2012 (SCAQMD, 2013), and submitted to EPA for approval on December 20, 2012. A Supplement to the 2012 AQMP, regarding attainment of the 24-hour $PM_{2.5}$ standard by 2015, was approved by the Governing Board on February 5, 2015, and submitted to CARB and EPA for approval as part of the California SIP (SCAQMD, 2015b).

SCAQMD staff issued a draft version of a 2016 AQMP in June 2016, and a revised draft 2016 AQMP in October 2016. This comprehensive plan is primarily focused on achieving compliance with the national ozone and $PM_{2.5}$ standards, in conjunction with multiple goals for emissions reductions and efficiencies in energy use, transportation, and goods movement. The 2016 AQMP represents a thorough analysis of existing and potential regulatory control options, including available, proven, and cost-effective strategies (SCAQMD, 2016b).

#### 11.4.3.2 SCAQMD Regulations

Projects that emit air pollutants are required to be in compliance with applicable SCAQMD regulations and rules. The Proposed Project construction and operation would be subject to Rule 403 (Fugitive Dust), which requires specific actions or measures to prevent, reduce, or mitigate particulate matter emissions generated by man-made fugitive dust sources. Required actions for fugitive dust sources are listed in Rule 403, Table 1, Best Available Control Measures. Additional requirements for large operations with 50 acres or more of disturbed surface area, or with a daily earth-moving or throughput volume of 5,000 cubic yards are listed in Rule 403, Tables 2 and 3. The requirements for larger operations would apply to the construction phases of the Proposed Project, and may apply to operation of the landfill and compost facility.

Equipment installed for the Proposed Project would be subject to SCAQMD regulations for permitting (e.g., Regulations II, XIII, and XXX, and the associated rules), and other applicable operational and emission limits in the rules. Current landfill operations must comply with the Title V operating permit previously issued for the landfill (Facility ID 119219), which limits emissions from the existing flares and requires odor mitigation.

SCAQMD regulations that may apply to operation of the Proposed Project include:

**Prohibitory Rules (Regulation IV)**

SCAQMD Regulation IV contains a number of prohibitory rules that generally apply to facility operations, including:

- Rule 401 Visible Emissions
- Rule 402 Nuisance
- Rule 403 Fugitive Dust
- Rule 404 Particulate Matter - Concentration
- Rule 405 Solid Particulate Matter - Weight
- Rule 407 Liquid and Gaseous Air Contaminants
- Rule 408 Circumvention
- Rule 409 Combustion Contaminants
- Rule 430 Breakdown Provisions
- Rule 431.1 Sulfur Content of Gaseous Fuels

**New Source Review Rules (Regulation XIII)**

Regulation XIII combines the federal and state NSR requirements into a single rule. Regulation XIII establishes preconstruction review and permitting requirements for new or modified facilities to ensure that operation of such facilities does not interfere with progress towards the attainment of ambient air quality standards.

**New Source Review Rules for Air Toxics (Regulation XIV)**

Regulation XIV establishes allowable public health risks for permit units by specifying limits for estimated excess lifetime maximum individual cancer risk (MICR), cancer burden, and non-cancer acute hazard index (HIA) and chronic hazard index (HIC) from new or modified units which emit TACs.

**Source-Specific Rules: Emissions from Gaseous and Liquid Fueled Engines (Rule 1110.2)**

The purpose of Rule 1110.2 is to reduce emissions of NOx, ROG, and CO from stationary and portable engines over 50 rated brake horsepower.

**Source-Specific Rules: Composting (Rules 1133, 1133.1, 1133.2, and 1133.3)**

The proposed composting facility and operations would be subject to composting Rules 1133, 1133.1, 1133.2, and 1133.3, including potential permitting requirements, BMPs to prevent emissions from chipping and grinding, and control requirements for co-composting, green waste, and/or food waste composting, depending on the processes used and the materials processed.

**Source-Specific Rules: Landfill Gas Emission Control (Rule 1150.1)**

SCAQMD Rule 1150.1 is intended to limit municipal solid waste landfill emissions to prevent public nuisance and possible detriment to public health caused by exposure to such emissions. The primary elements of this rule include the requirement for a LFG collection and control system and a monitoring system to verify the proper operation of the gas collection system.

**Source-Specific Rules: Clean On-Road Residential and Commercial Refuse Collection Vehicles (Rule 1193)**

SCAQMD Rule 1193 requires public fleets, and private fleet operators who provide solid waste collection services to governmental agencies to use alternative-fuel refuse collection and transfer vehicles when procuring or leasing these vehicles in the SCAQMD. CCL does not own or operate waste collection trucks, therefore SCAQMD Rule 1193 would not be directly applicable to CCL or Waste Connections, Inc.

#### 11.4.3.3 Countywide General Plan Air Quality Element

The October 2015 Los Angeles County 2035 General Plan includes an Air Quality Element, which summarizes air quality issues and outlines the goals and policies in the General Plan that will improve air quality and reduce greenhouse gas emissions (Los Angeles County, 2015a). One sub element— the Community Climate Action Plan (CCAP)—supplements the Air Quality Element (Los Angeles County, 2015b). The CCAP establishes actions for reaching the County's goals to reduce greenhouse gas emissions in the unincorporated areas.

Applicable Air Quality goals and policies in the Air Quality Element include the following:

- **Goal AQ 1:** Protection from exposure to harmful air pollutants.
- **Policy AQ 1.1:** Minimize health risks to people from industrial toxic or hazardous air pollutant emissions, with an emphasis on local hot spots, such as existing point sources affecting immediate sensitive receptors.
- **Policy AQ 1.2:** Encourage the use of low or no volatile organic compound (VOC) emitting materials.
- **Policy AQ 1.3:** Reduce particulate inorganic and biological emissions from construction, grading, excavation, and demolition to the maximum extent feasible.
- **Goal AQ 2:** The reduction of air pollution and mobile source emissions through coordinated land use, transportation and air quality planning.
- **Policy AQ 2.3:** Support the conservation of natural resources and vegetation to reduce and mitigate air pollution impacts.
- **Policy AQ 2.4:** Coordinate with different agencies to minimize fugitive dust from different sources, activities, and uses.
- **Goal AQ 3:** Implementation of plans and programs to address the impacts of climate change.

- **Policy AQ 3.1:** Facilitate the implementation and maintenance of the Community Climate Action Plan to ensure that the County reaches its climate change and greenhouse gas emission reduction goals.
- **Policy AQ 3.5:** Encourage energy conservation in new development and municipal operations.
- **Policy AQ 3.6:** Support rooftop solar facilities on new and existing buildings.
- **Policy AQ 3.7:** Support and expand urban forest programs within the unincorporated areas.

#### 11.4.3.4 Santa Clarita Valley Area Plan

The Santa Clarita Valley Area Plan (Area Plan) serves as a long-term guide for development in the Santa Clarita Valley (Valley) Planning Area over the next 20 years (Los Angeles County, 2012). The Area Plan ensures consistency between the General Plans of the County and the City of Santa Clarita in order to achieve common goals. The Area Plan includes several policies related to air quality within its Circulation and Conservation and Open Space Elements. These policies address the use of smart growth concepts to reduce vehicle miles traveled, trip reduction measures such as carpools and flexible work schedules/telecommuting, and alternative travel modes, including alternative fuel vehicles.

# 11.5 Local Setting

## 11.5.1 Existing Operating Emissions

CCL actively receives waste at a roughly 200-foot by 300-foot working face within the site. Daily operations at the existing landfill consist of typical waste disposal activities and use of equipment and facilities that contribute criteria pollutants to the ambient air in the air basin. The operation of landfills and the associated emission rates are unique in comparison to other land development projects, because landfill operations require the regular use of heavy-duty construction equipment and collection vehicles, long-term exposure of non-vegetated soil layers, constant movement of soil and refuse, and proper onsite disposal of LFG. At CCL, an LFG collection system has been installed in both closed and active landfill areas, and a 9.2-megawatt LFGTE plant and flare stations have been added to combust the collected gases. Air emissions from landfill operations are associated with fugitive LFG emissions, operation of the flare stations and LFGTE plant, use of construction vehicles and waste trucks at refuse fill areas, construction of additional modules for waste receiving, and closure of modules that have reached capacity. Current emission reduction measures and BMPs implemented on a daily basis at the landfill are listed in Table 11-1.

#### 11.5.1.1 Landfill Gas Surface Emissions

As part of landfill operation, gas wells and pipelines are installed to capture the gas generated by the decaying solid waste. Initially, the LFG is mostly carbon dioxide ($CO_2$). As the buried waste ages, the available oxygen decreases and anaerobic conditions are created, producing methane ($CH_4$) and reduced sulfur compounds. $CH_4$ is a powerful greenhouse gas (GHG), and reduced sulfur compounds have strong odors. Potential GHG impacts from the Proposed Project are discussed in Chapter 12, Greenhouse Gas Emissions and Climate Change, of this Partially Recirculated Draft EIR.

The collected gas is monitored to be sure the collection system is collecting LFG without drawing in ambient air. The collected gas is combusted in either the LFGTE plant or a flare, converting the $CH_4$ to $CO_2$, and reduced sulfur compounds into $SO_2$. Two LFG flares, each with a capacity of 4,000 cubic feet per minute, are in operation.

The existing gas wells and pipelines at CCL collect an average of 81.7 percent of the LFG produced, based upon the averaging method recommended by the SCAQMD and directed for use by Los Angeles County Department of Public Works (LACDPW) (Golder Associates, 2016), and about 18.3 percent of the gas

generated in the landfill escapes as fugitive emissions. See Appendix H-4 for details. Several actions are taken to minimize these emissions:

- Gauge pressure is negative at the gas extraction well.
- Nitrogen and oxygen concentrations are monitored to minimize excess air infiltration.
- LFG temperatures at the gas extraction wells are monitored to limit the potential for subsurface fires.
- $CH_4$ concentrations across the landfill surface are monitored to prevent seeping of $CH_4$ gas from the landfill surface.
- Per the Proposed Project BMP, the landfill will be operated to improve LFG collection efficiency to a site-wide average of 85 percent through application of a combination of daily cover, intermediate cover, and final cover to provide a beneficial improvement in ongoing LFG collection efficiency.[2]

#### 11.5.1.2 Mobile Source Emissions

**Fugitive Dust Emissions**

Fugitive dust emissions are generated during operation and construction of the landfill by the following activities:

- Excavation and grading activities
- Unloading of collection vehicles
- Heavy equipment operations (scrapers, bulldozers, compactors, graders, and water trucks) that apply daily and intermediate cover to refuse, compact refuse and soil, maintain haul road conditions, and work the face of the landfill
- Management of soil stockpiles
- Landfill liner installation and final cover construction
- Truck travel on paved and unpaved roads

**Mobile Source Tailpipe Exhaust Emissions**

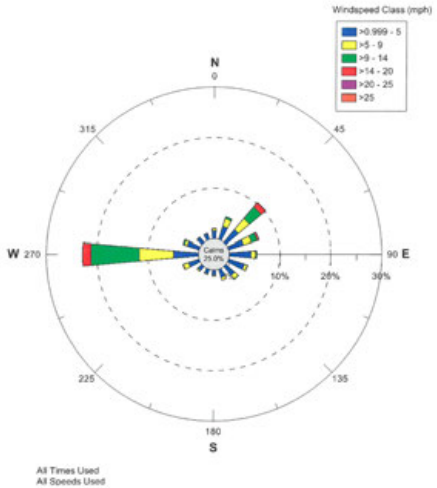
Mobile source tailpipe exhaust emissions are generated from the following sources during operation and construction of the landfill:

- Onsite service trucks and heavy equipment
- Collection trucks, transfer trucks, and passenger vehicles that deliver solid waste and yard waste
- Passenger vehicles associated with landfill employees

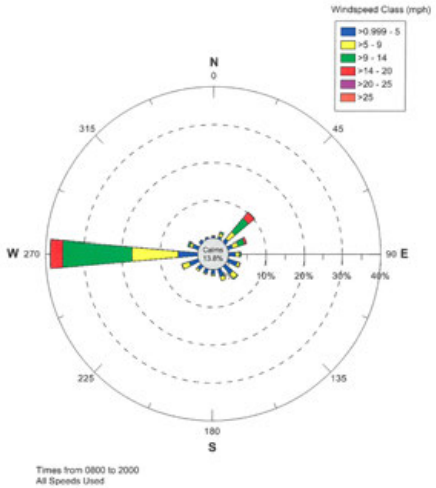
### 11.5.2 Local Wind Patterns

Because wind patterns can change greatly, particularly around a steep-sided canyon such as that at CCL, data from wind monitoring equipment located on the western boundary of CCL were used to evaluate local wind patterns, specifically for evaluating the potential for offsite odors. Three consecutive years of wind data from the CCL wind monitoring equipment (2012 through 2014) were available for use in this odor analysis. Local wind roses were developed for the available CCL data (Figure 11-3).

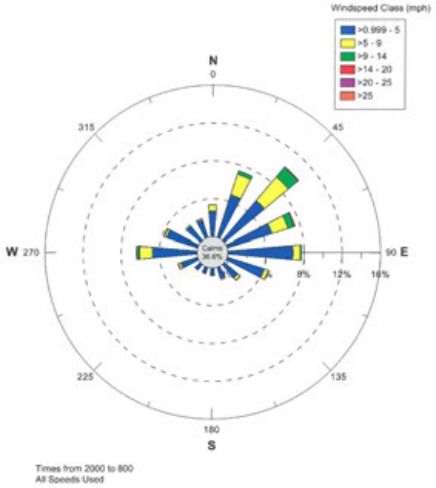
[2] This BMP is based on the SCS Engineers Memorandum dated November 2016 (SCS, 2016a), presented in Appendix H-3, which provides an evaluation of the benefits of cover modifications to improve LFG collection efficiency at CCL. Improvements to the existing site-wide LFG collection efficiency are modeled using a methodology developed by the Solid Waste Industry for Climate Solutions (SWICS, 2009), which allows for adjustment of collection efficiency within a range of values by cover type. By optimizing the landfill surface area converted to intermediate and final (impermeable membrane) cover, ongoing LFG collection efficiency can be increased at the landfill from current levels (estimated at 81.7%) to 85 percent, and maintained at this level by management of cover, reducing fugitive emissions of GHGs and TACs from the landfill.



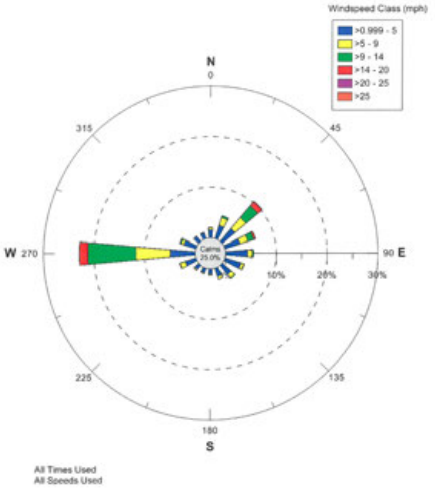

**11-3a**
**3-Year Wind Rose (2012-2014)**




**11-3b**
**Daytime (8am to 8pm) Wind Rose**




**11-3c**
**Nighttime (8pm to 8am) Wind Rose**




**11-3d**
**June to August Wind Rose**

**Figure 11-3.**
**Chiquita Canyon Landfill Wind Roses**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Figure 11-3a presents a wind rose based on 3-year wind data collected from CCL. The data show that winds in the immediate project area blow primarily from west to east. About 12 percent of the winds in this direction have speeds lower than 9 mph. About 10 percent of the winds blowing in this direction have speeds between 9 and 14 mph. Stronger (over 14 mph) winds were infrequently observed in this prevailing direction. For approximately 10 percent of the time, winds blow from northeast to southwest. The wind occurrences and wind speeds from all other directions are low.

Local wind patterns associated with time changes and seasonal changes also were evaluated. Figures 11-3b and 11-3c show the daytime (8 a.m. to 8 p.m.) and nighttime (8 p.m. to 8 a.m.) wind roses using the data from CCL. The daytime wind rose (Figure 11-3b) is similar to the 3-year wind rose (Figure 11-3a), with even more frequent winds from the west. The nighttime wind rose (Figure 11-3c) shows lighter winds, blowing primarily from the northeast and east. Most of the time the night winds are below 5 mph.

Figure 11-3d shows the wind rose in summertime (June through August), based on the data from CCL. The CCL local wind rose indicates the same wind pattern in summer as in the daytime, with winds blowing from west to east.

Generally, the wind roses plotting the local wind data from CCL show local winds blowing primarily from west to east during the daytime and summer months and light winds from northeast and east during the nighttime, with winds blowing infrequently toward the community of Val Verde.

## 11.5.3 Sources of Odor at CCL

Two potential sources of odor are from landfill and composting operations: aerobic (with air) decomposition of incoming organic waste, and gases produced by anaerobic (without air) bacterial digestion of buried waste.

Odors may result from incoming waste after it is emptied from the truck and before it is composted or completely covered in the landfill. Any resulting odor is from the aerobic decomposition of organic waste materials. Most of the organic matter that enters the facility, including cooked and uncooked foods and garden wastes, has begun to decompose before being delivered. These wastes are aggressively managed to minimize odors that would potentially leave the landfill area during the day, as described in the following subsection.

Anaerobic digestion of the buried waste produces LFG, the second source of odors. LFG consists primarily of $CO_2$ and $CH_4$, which are generally odorless, as well as trace amounts of volatile organic gases and odorous compounds. As these natural gases are produced within the landfill, internal pressures move the gases along the paths offering the least resistance, which may be vertically through a permeable cover.

Odors may occur as LFG moves through porous soils or when cracks develop in the landfill surfaces due to landfill settlement, or at points of penetration of the landfill surface, such as those for LFG collection piping, allowing the gases to escape into the environment.

## 11.5.4 Current Odor Management Strategies at CCL

Best operating practices for management of aerobic sources of odor at CCL are described below:

***Best Operating Practices – Source Control***

- The most effective method used to control odors associated with incoming trash is CCL's waste exclusion program. CCL can and does refuse to do business with customers or potential customers who generate highly odorous loads.
- CCL rejects trucks at the scales when there is an obvious highly odorous load.

- CCL selectively chooses to exclude trash loads from specific locations and on specific days of the week if there is a history of odorous loads.
- If a highly odorous load is detected while unloading, that waste is immediately covered to control odors.

***Best Operating Practices – Disposal***

- The size of the working face expands to accommodate disposal demand peaks, but then "shrinks" when demand subsides to minimize odors.
- The "shrinking" is achieved by covering the working face regularly throughout the day.
- As needed, CCL covers portions of the working face multiple times during the day to minimize the surface area of exposed trash and potential odors.
- CCL regularly exceeds state minimum standards and textbook rules-of-thumb for the use of soil and other beneficial use material to cover trash and other areas of the landfill. This is done to proactively minimize odors from fresh trash.
- CCL has a perimeter odor control system, which consists of a meteorological station located on the western boundary of the landfill that provides real-time information on wind speed and wind direction, plus a perimeter misting system over 1 mile long attached to the litter fence located along the western and northern boundaries of the waste disposal area. When the combination of weather conditions and odorous loads have the potential to result in offsite migration of odors, CCL disperses odor neutralizing agents through the nozzles.
- CCL utilizes large portable fans that can move nearly 1 million cubic feet per minute of air to help control the direction of air flow and to dilute and disperse odors generated at the tipping area.

Management of anaerobic sources of odor at CCL is described below:

To prevent the release of odorous gases from anaerobic digestion, an extensive LFG collection and control system (GCCS) has been installed at CCL. The collected LFG is either used as fuel in the onsite power plant (LFGTE plant) or combusted in a LFG flare. Landfill surfaces are monitored regularly for evidence of gaseous emissions. When emissions are detected, they are corrected by adjusting the GCCS, or recompacting the cover soils, or both. Proper maintenance of the soil cover (e.g., repairing cracks), application of a combination of daily cover, intermediate cover, and final cover to provide a beneficial improvement in ongoing LFG collection efficiency, and efficient operation of the GCCS are also effective at controlling LFG odors.

CCL typically installs LFG collection wells 6 months to 2 years before the landfill starts collecting gas. This early installation removes the guess work of when to install more wells. When routine monitoring indicates the need for additional gas collection, the collection wells are simply turned on, proactively controlling gas and resulting odors before odors are detected.

CCL's LFG collection system is addressed by a Title V Permit to Operate issued by SCAQMD. The Title V permit includes specific conditions/mitigation measures with which CCL must comply. Conditions 22 and 23 of the Title V permit address odor from construction of the LFG collection system, and require mitigation measures to be implemented if odors during construction of the LFG system are detected beyond the property line.

For composting operations, CCL has previously controlled odors by maintaining aerobic conditions in the windrows where yard waste was deposited for composting. The compost windrows were monitored for temperature, oxygen content, and moisture on a daily basis to provide odor and process control.

CCL has an Odor Hotline (phone number: 661-253-5155) the public can call to report odor complaints, allowing faster, more direct action to be taken to resolve the complaint.

## 11.5.5 Odor Complaints

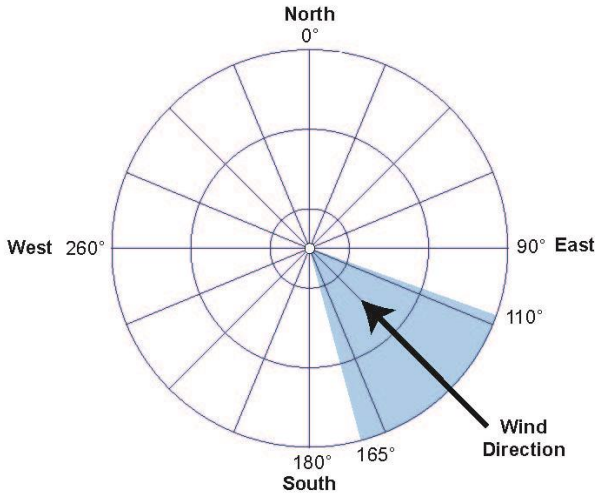
The impact of an existing odor source on surrounding sensitive receptors is evaluated by identifying the number of confirmed or verified complaints received for that specific odor source. The SCAQMD thresholds chart states that the threshold for odor is the creation of a nuisance under SCAQMD Rule 401 (SCAQMD, 2015d). Rule 402 does not set forth a quantitative threshold for this determination, and in consultation with SCAQMD staff, it was agreed that this EIR would apply the numerical standard developed by the Bay Area Air Quality Management District (BAAQMD) (SCAQMD, 2015c). BAAQMD CEQA Air Quality Guidelines recommend reviewing odor complaints from the past 3 years for the source in question. BAAQMD considers a source to have a substantial number of odor complaints if the complaint history includes five or more confirmed complaints per year averaged over a 3-year period (BAAQMD, 2010).

A verified complaint is any complaint in which the Air Quality Management District inspector performs an odor survey in response to the complaint and confirms the presence of an odor outside the landfill boundaries that can be attributed to the landfill. Odor complaint records for CCL were requested from SCAQMD. Below is a summary based on the results for 8 years of public records requests for odor complaints submitted to SCAQMD:

- August 2007 to July 2012: 3 verified odor complaints, or an average of 0.6 confirmed complaints per year over this 5-year period.
- August 2012 through August 2015: 23 verified odor complaints occurred on a total of 11 days during this 37-month time period. Additionally, CCL received a Notice of Violation (NOV) for odor on 1 additional day, for a total of 12 confirmed odor events over a 37-month period, or an average of 3.9 odor complaints (categorized as odor events) per year.

While the specific locations of odor complaints verified by SCAQMD are not known, the general location of these complaints is considered to be the community of Val Verde, located northwest of CCL. Among the recent verified odor complaints by SCAQMD, specific complaint times were available for four odor events. Wind data for these times were obtained from the CCL monitoring station and are summarized below. The intent is to evaluate the correlation between the monitored wind conditions and the odors reported and verified at Val Verde. The meteorological data from Santa Clarita station between year 2014 and 2015 are not publically available; therefore, similar analysis cannot be conducted using Santa Clarita data.

Wind direction is represented with the unit of degree from which the wind blows. The direction starts from zero degree at North, then goes clockwise. Winds from the direction between approximately 110 degrees and 165 degrees are generally considered to be blowing towards Val Verde.



Odor event No. 1 was reported on January 26, 2015, between 9:51 a.m. and 10:26 a.m. During that hour, wind directions changed from west to southeast then to north-northeast. The southeast wind direction at 10 a.m. was consistent with detectable odors at Val Verde. Wind speed was less than 5 mph.

| Time | Wind speed (mph) | Wind direction (degrees) |
|---|---|---|
| 1/26/2015 9:45 a.m. | 2.2 | 275 |
| 1/26/2015 10:00 a.m. | 2.5 | 130 |
| 1/26/2015 10:15 a.m. | 4.7 | 70 |
| 1/26/2015 10:30 a.m. | 4.7 | 67 |

Odor event No. 2 was reported on December 24, 2014, from 11:17 a.m. to 12:29 p.m. During this period, the winds generally blew from southeast toward Val Verde. This set of data supports the correlation between wind and detectable odors at Val Verde. Wind speed was less than 3 mph.

| Time | Wind speed (mph) | Wind direction (degree) |
|---|---|---|
| 12/24/2014 11:15 a.m. | 2.7 | 146 |
| 12/24/2014 11:30 a.m. | 2.3 | 138 |
| 12/24/2014 11:45 a.m. | 1.6 | 109 |
| 12/24/2014 12:00 p.m. | 1.3 | 149 |
| 12/24/2014 12:15 p.m. | 1.6 | 117 |
| 12/24/2014 12:30 p.m. | 1.6 | 156 |

Odor event No. 3 was reported on December 20, 2014, from 9:27 a.m. to 3:06 p.m. During this period, winds blew from the southeast (120 to 150 degrees) for about half of the time, which would correlate with detectable odors at Val Verde. The other times, winds blew from east, west, or northwest. Wind speed was less than 5 mph.

| Time | Wind speed (mph) | Wind direction (degree) |
|---|---|---|
| 12/20/2014 9:30 | 2.0 | 112 |
| 12/20/2014 9:45 | 1.54 | 195 |
| 12/20/2014 10:00 | 1.7 | 135 |
| 12/20/2014 10:15 | 2.5 | 127 |
| 12/20/2014 10:30 | 1.9 | 66 |
| 12/20/2014 10:45 | 2.0 | 190 |
| 12/20/2014 11:00 | 2.9 | 139 |
| 12/20/2014 11:15 | 1.8 | 137 |
| 12/20/2014 11:30 | 1.8 | 112 |
| 12/20/2014 11:45 | 3.2 | 116 |
| 12/20/2014 12:00 | 3.0 | 123 |
| 12/20/2014 12:15 | 2.2 | 155 |
| 12/20/2014 12:30 | 2.4 | 129 |
| 12/20/2014 12:45 | 2.1 | 227 |
| 12/20/2014 13:00 | 2.4 | 99 |
| 12/20/2014 13:15 | 1.8 | 331 |

| Time | Wind speed (mph) | Wind direction (degree) |
|---|---|---|
| 12/20/2014 13:30 | 1.6 | 325 |
| 12/20/2014 13:45 | 3.3 | 289 |
| 12/20/2014 14:00 | 4.9 | 275 |
| 12/20/2014 14:15 | 3.4 | 310 |
| 12/20/2014 14:30 | 3.3 | 267 |
| 12/20/2014 14:45 | 3.5 | 258 |
| 12/20/2014 15:00 | 3.1 | 210 |
| 12/20/2014 15:15 | 2.8 | 199 |

This particular odor event on December 20, 2014, resulted in an NOV from SCAQMD and was mitigated within an hour of CCL becoming aware of the issue. The source of the odor was a load of green waste deposited away from the working face, where CCL staff did not immediately notice that the green waste was unusually odorous. The particularly odorous load came from a customer who had a breakdown of his green waste grinding equipment, which resulted in the green waste sitting in the customer's yard much longer than normal and developing a very strong odor before being delivered to CCL. The customer did not notify CCL of the equipment breakdown and subsequent delay in delivery of the green waste to CCL. Following the event, CCL held additional employee training to emphasize the importance of checking green waste loads for odors wherever and whenever they are delivered.

Odor event No. 4 was reported on October 8, 2014, 9:08 a.m. to 9:35 a.m. During this period, the winds generally blew from the southeast toward Val Verde. This set of data also supports the correlation between wind and detectable odors at Val Verde. Wind speed was less than 3 mph.

| Time | Wind speed (mph) | Wind direction (degree) |
|---|---|---|
| 10/8/2014 9:00 | 2.1 | 117 |
| 10/8/2014 9:15 | 2.3 | 131 |
| 10/8/2014 9:30 | 2.3 | 126 |

Currently, according to the BAAQMD CEQA Air Quality Guidelines for odors, CCL does not have a significant odor impact on receptors. When verified odors have occurred, they appear to be correlated to light winds blowing toward the community of Val Verde. According to the CCL wind rose depicted in Figure 11-3a, winds blow toward the community of Val Verde approximately 9 percent of the time. Light winds toward Val Verde, as seen during the four odor events described above, occur approximately 6 percent of the time.

## 11.5.6 Odor Investigation at CCL

Soil/Water/Air Protection Enterprise (SWAPE) conducted an Odor Survey in the spring and summer of 2015 at CCL to characterize and understand the various odors in and around CCL (SWAPE, 2015). The entire SWAPE Report is included in Appendix H-5.

Three trained odor specialists conducted odor sampling on 25 mornings generally between the hours of 6 a.m. and 10 a.m., when odors have been reported to be the most common. Sampling events took place on Tuesdays, Wednesdays, Thursdays, and Fridays between April 7, 2015 and July 16, 2015. During each sampling event, 50 to 51 locations were sampled, for a total of 3,789 data points.

Locations were selected to give a thorough geographic distribution of sampling points, including potential receptors such as the Val Verde community. Locations were grouped into 14 location groups inside the landfill and offsite in the surrounding communities.

Odors were described using the following methods: (1) Dilution to Threshold values to quantify the strength; (2) Hedonic Tone to quantify the pleasantness; (3) Odor Descriptors to describe the odor; and (4) Suspected Odor Source to describe whether the odor came from the landfill or elsewhere. Analysis of these parameters showed that the landfill working face had the strongest and most unpleasant odors. Offsite, odors were much weaker and were generally neutral in hedonic tone.

Odors were strongest within the landfill property, specifically at or near the working face. The most common odors detected within the landfill were smells of grass, sage, and other plants, the sweet air freshener smell of the odor control system, rotten and sour trash odors, and musty mulch odors. Trash odors were only detected within the landfill at locations other than the working face when weather conditions were hot, with low or calm winds. However, even during these conditions, trash odors were only rarely detected.

Outside the landfill, odors (regardless of source) were often not detected. In fact, 40 percent of offsite sampling data points contained no odors. Trash odors were rarely detected outside the landfill. Some of these detections were determined not to be landfill-related due to confounding sources of odor, and others were too faint to detect when diluted. Specifically, odors potentially related to the landfill were detected offsite 34 times out of 2,025 offsite sampling data points, or 1.68 percent of the time.

The SWAPE Report concludes that because of the small detection rate of landfill-related odors offsite, the landfill does not create significant odor impacts to the surrounding communities.

# 11.6 Potential Impacts

## 11.6.1 Standards of Significance

### 11.6.1.1 Criteria under CEQA Context

Pursuant to the *CEQA Guidelines*, air quality impacts related to the Proposed Project would be significant if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Expose sensitive receptors to substantial pollutant concentrations
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)
- Create objectionable odors affecting a substantial number of people

## 11.6.2 Thresholds of Significance

### 11.6.2.1 SCAQMD Thresholds

In addition to the above CEQA significance criteria, SCAQMD has developed emission, air dispersion modeling, and health risk thresholds for CEQA analysis. SCAQMD air quality significance thresholds are shown in Table 11-6. Air quality impacts resulting from construction and operation would be deemed significant if daily emission estimates, air modeling results, or HRA results would exceed the following significance thresholds:

Table 11-6. SCAQMD Air Quality Significance Thresholds
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| Mass Daily Thresholds[a] | | |
|---|---|---|
| **Pollutant** | **Construction** | **Operation** |
| **NOx** | 100 lbs/day | 55 lbs/day |
| **VOC (ROG)** | 75 lbs/day | 55 lbs/day |
| **$PM_{10}$** | 150 lbs/day | 150 lbs/day |
| **$PM_{2.5}$** | 55 lbs/day | 55 lbs/day |
| **SOx** | 150 lbs/day | 150 lbs/day |
| **CO** | 550 lbs/day | 550 lbs/day |
| **Lead** | 3 lbs/day | 3 lbs/day |
| **Toxic Air Contaminants (TAC), Odor, and GHG Thresholds** | | |
| **TACs (including carcinogens and non-carcinogens)** | Maximum Incremental Cancer Risk ≥ 10 in 1 million<br>Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Hazard Index ≥ 1.0 (project increment) | |
| **Odor** | Project creates an odor nuisance pursuant to SCAQMD Rule 402 | |
| **GHG** | 10,000 MT/yr $CO_2e$ for industrial facilities | |
| **Ambient Air Quality Standards for Criteria Pollutants[b]** | | |
| **$NO_2$** | SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: | |
| 1-hour average | 0.18 ppm (state) | |
| Annual average | 0.03 ppm (state) and 0.0534 ppm (federal) | |
| **$PM_{10}$** | | |
| 24-hour average | 10.4 µg/$m^3$ (construction)[c] and 2.5 µg/$m^3$ (operation) | |
| Annual average | 1.0 µg/$m^3$ | |
| **$PM_{2.5}$** | | |
| 24-hour average | 10.4 µg/$m^3$ (construction)[c] and 2.5 µg/$m^3$ (operation) | |
| **$SO_2$** | | |
| 1-hour average | 0.25 ppm (state) and 0.075 ppm (federal) | |
| 24-hour average | 0.04 ppm (state) | |
| **Sulfate** | | |
| 24-hour average | 25 µg/$m^3$ | |
| **CO** | SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: | |
| 1-hour average | 20 ppm (state) and 35 ppm (federal) | |
| 8-hour average | 9.0 ppm (state/federal) | |
| **Lead** | | |
| 30-day average | 1.5 µg/$m^3$ (state) | |
| Rolling 3-month average | 0.15 µg/$m^3$ (federal) | |

Source: SCAQMD, 2015d.

Footnotes listed in the cited SCAQMD Air Quality Significance Thresholds table:

[a] Source: SCAQMD *CEQA Air Quality Handbook* (SCAQMD, 1993)

[b] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2, unless otherwise stated.

[c] Ambient air quality threshold based on SCAQMD Rule 403.

Notes:

lbs/day = pounds per day

MT/yr $CO_2e$ = metric tons per year of $CO_2$ equivalents

## 11.6.3 Proposed Project

This section presents the potential construction and operation impacts that would result from implementation of the Proposed Project.

### 11.6.3.1 Construction Impacts

This section presents an evaluation of the potential impacts that would result from construction of the Proposed Project.

***Impact AQ-1:*** *Implementation of the Proposed Project would generate emissions due to construction; construction related activities have been conservatively included in the operational profile of the facility and operation impact assessment and findings.*

Impact Discussion. Construction activities would occur simultaneously with operation activities. Even though construction of the modules and compost facility would be temporary and occur for only 4 to 6 months every 2 to 5 years, representative daily construction emissions have been conservatively added to daily operational emissions in the operation impacts evaluation.

***Impact AQ-2:*** *Construction activities associated with the Proposed Project would result in net increases in daily mass emissions of $PM_{10}$, $PM_{2.5}$, and precursors to the nonattainment pollutant ozone (specifically, NOx and ROG). Impacts associated with construction activities have been conservatively included in the operational profile of the facility and operation impact assessment and findings.*

Impact Discussion. As described in AQ-1 above, the emissions that would be generated due to construction activities have been conservatively included in the operation emissions profile, and the impacts of the combined activities are described in the sections below.

***Impact AQ-3:*** *Construction activities would result in emissions of toxic air pollutants; construction-related toxic emissions have been conservatively included in the operational profile and operation impact assessment and findings.*

Impact Discussion. As described in AQ-1 above, the emissions that would be generated due to construction activities have been conservatively included in the operation emissions profile and the impacts of the combined activities are described in the sections below.

### 11.6.3.2 Operation Impacts

This section presents an evaluation of the potential impacts that would result from operation and construction of the Proposed Project.

***Impact AQ-4:*** *Operation and construction of the Proposed Project would be consistent with applicable air quality plans, therefore impacts would be less than significant.*

Impact Discussion. The applicable SCAQMD air quality plans (SCAQMD, 1997, 1999, 2013, 2015b, 2016b) and the applicable air quality goals and policies in the *Los Angeles County 2035 General Plan* (Los Angeles County, 2015a) and the Santa Clarita Valley Area Plan (Los Angeles County, 2012) were reviewed to determine whether the Proposed Project would conflict with air quality plans. SCAQMD's plans present the strategies and control measures needed to continue to improve air quality in the Basin. The Proposed Project would comply with applicable SCAQMD rules and regulations and would not impair the region's ability to achieve the SCAQMD's goals for attainment of national and state air standards as outlined in the 2012 AQMP and the 2016 draft AQMPs. Implementation of the Proposed Project, with Project Design Measures, would be consistent with SCAQMD air quality plans.

With respect to the County General Plan, the Proposed Project would be consistent with the applicable Countywide Air Quality Element goals and policies and with the goals and policies related to air quality in the Santa Clarita Valley Area Plan Circulation and Conservation and Open Space Elements, as described in Table 11-7 below. As described in Chapter 12, Greenhouse Gas Emissions and Climate Change, of this Partially Recirculated Draft EIR, the Proposed Project would also be consistent with the CCAP.

Table 11-7. Countywide General Plan Air Quality Element
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| | |
|---|---|
| **Goal AQ 1:** Protection from exposure to harmful air pollutants. | **Consistent.** The Proposed Project would include Project Design Measures and feasible mitigation to protect from exposure to harmful air pollutants. An HRA was prepared, which demonstrates that the Proposed Project with Project Design Measures and BMPs would result in less than significant impacts with respect to harmful air pollutants. |
| **Policy AQ 1.1:** Minimize health risks to people from industrial toxic or hazardous air pollutant emissions, with an emphasis on local hot spots, such as existing point sources affecting immediate sensitive receptors. | **Consistent.** The Proposed Project would include Project Design Measures and feasible mitigation to protect from exposure to harmful air pollutants. An HRA was prepared, which demonstrates that the Proposed Project would result in less than significant impacts with respect to harmful air pollutants. |
| **Policy AQ 1.2:** Encourage the use of low or no VOC emitting materials. | **Consistent.** LFG consists primarily of $CO_2$ and $CH_4$, which are generally odorless, as well as trace amounts of volatile organic gases and odorous compounds. The Proposed Project would continue operation of the LFG collection system, which meets applicable regulatory standards, and converts LFG to usable energy in the LFGTE plant. |
| **Policy AQ 1.3:** Reduce particulate inorganic and biological emissions from construction, grading, excavation, and demolition to the maximum extent feasible. | **Consistent.** The Proposed Project would comply with all SCAQMD rules and regulations for construction. |
| **Goal AQ 2:** The reduction of air pollution and mobile source emissions through coordinated land use, transportation and air quality planning. | **Consistent.** The Proposed Project would contribute to the reduction of air pollution and mobile source emissions through implementation of BMPs and mitigation measures. |
| **Policy AQ 2.3:** Support the conservation of natural resources and vegetation to reduce and mitigate air pollution impacts. | **Consistent.** The Proposed Project would include a revegetation plan, which would result in the eventual replanting of the site with native vegetation. |
| **Policy AQ 2.4:** Coordinate with different agencies to minimize fugitive dust from different sources, activities, and uses. | **Consistent.** The Proposed Project would comply with all applicable rules and regulations to reduce fugitive dust from construction and operation. |
| **Goal AQ 3:** Implementation of plans and programs to address the impacts of climate change. | **Consistent.** Refer to Chapter 12, Greenhouse Gas Emissions and Climate Change, for an analysis of the Proposed Project's consistency with the CCAP. |
| **Policy AQ 3.1:** Facilitate the implementation and maintenance of the Community Climate Action Plan to ensure that the County reaches its climate change and greenhouse gas emission reduction goals. | **Consistent.** Refer to Chapter 12, Greenhouse Gas Emissions and Climate Change, for an analysis of the Proposed Project's consistency with the CCAP. |
| **Policy AQ 3.5:** Encourage energy conservation in new development and municipal operations. | **Consistent.** Refer to Chapter 12, Greenhouse Gas Emissions and Climate Change, for an analysis of the Proposed Project's consistency with the CCAP. |
| **Policy AQ 3.6:** Support rooftop solar facilities on new and existing buildings. | **Consistent.** Refer to Chapter 12, Greenhouse Gas Emissions and Climate Change, for an analysis of the Proposed Project's consistency with the CCAP. |
| **Policy AQ 3.7:** Support and expand urban forest programs within the unincorporated areas. | **Consistent.** Refer to Chapter 12, Greenhouse Gas Emissions and Climate Change, for an analysis of the Proposed Project's consistency with the CCAP. |

Table 11-7. Countywide General Plan Air Quality Element
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| **Santa Clarita Valley Area Plan** | |
|---|---|
| **Policy C-1.3.3:** Through trip reduction strategies and emphasis on multi-modal transportation options, contribute to achieving the air quality goals of the SCAQMD AQMP. | **Consistent.** The Proposed Project would be consistent with the 2012 AQMP. The Proposed Project would extend the useful life of a regional landfill within Los Angeles County, thereby potentially reducing the need for longer vehicle trips to transport waste to out-of-county landfills and other in-county landfills. |
| **Policy CO-1.3.1:** Explore, evaluate, and implement methods to shift from using non-renewable resources to use of renewable resources in all aspects of land use planning and development. | **Consistent.** The Proposed Project would continue operation of the LFGTE plant that converts LFG to usable "green" energy. |
| **Policy CO-3.6.5:** Ensure revegetation of graded areas and slopes adjacent to natural open space areas with native plants (consistent with fire prevention requirements). | **Consistent.** The Proposed Project would include a revegetation plan, which would result in the eventual replanting of the site with native vegetation. |
| **Objective CO-8.1:** Comply with the requirements of State law, including Assembly Bill 32, Senate Bill 375, and implementing regulations, to reach targeted reductions of GHG emissions. | **Consistent.** Refer to Chapter 12, Greenhouse Gas Emissions and Climate Change, for an analysis of the Proposed Project's consistency with the CCAP. |
| **Objective CO-8.3:** Encourage green building and sustainable development practices on private development projects, to the extent reasonable and feasible. | **Consistent.** Refer to Chapter 12, Greenhouse Gas Emissions and Climate Change, for an analysis of the Proposed Project's consistency with the CCAP. |
| **Objective CO-8.4:** Reduce energy consumption for processing raw materials by promoting recycling and materials recovery by all residents and businesses throughout the community. | **Consistent.** The Proposed Project would divert waste materials from disposal and put them to beneficial use. The Proposed Project would also provide a location for a future waste conversion technology facility, which may include materials recovery. |
| **Policy CO-8.4.3:** Allow and encourage composting of greenwaste, where appropriate. | **Consistent.** The Proposed Project would include a green waste processing/composting operation. |

As described above, implementation of the Proposed Project, with Project Design Measures, would be consistent with applicable air quality plans; therefore impacts would be less than significant.

**Project Design Measures**

Control measures and actions that would be implemented by CCL as part of the Proposed Project operation and construction activities include continuation of current emission reduction measures and incorporation of BMPs to control exhaust or fugitive dust emissions (as listed in Table 11-1).

***Impact AQ-5:*** *Combined operation and construction of the Proposed Project would generate emissions that would exceed the criteria pollutant significance thresholds used by SCAQMD to determine significance of operational emissions. Therefore, impacts associated with combined construction- and operation-related emissions would be significant.*

Impact Discussion. Impacts that would be associated with construction and operation of the Proposed Project were evaluated based on the estimated and combined construction- and operation-related emissions of the pollutants CO, NOx, ROG, CO, $SO_2$, $PM_{10}$, and $PM_{2.5}$. Emissions from construction of the proposed new entrance, landfill modules, and compost facility would result from on-road vehicle exhaust, off-road equipment exhaust, and fugitive dust. Operation-related emissions would result from on-road vehicle exhaust, off-road equipment exhaust, fugitive dust, flare operation, fugitive LFG, and composting. As described in Section 11.2 and Appendix H-1, onsite and offsite vehicle exhaust emissions

from waste and compost haul truck trips, for both transfer trucks and direct collection trucks, were calculated and included in the operational emissions totals. Emissions were not calculated for the LFGTE plant, because operations associated with this facility were assumed to be included with existing conditions and would not change with the Proposed Project.

The impact analysis conservatively summed the emissions that would be generated from anticipated construction activities with the emissions that would be generated from annual operation of the Proposed Project to identify the future project year with the highest potential combined emissions. Through this process, the years identified to be the project year with the highest potential combined emissions varied by pollutant. Year 2041 was identified to be the project year with the highest potential combined emissions of ROG, CO, $PM_{10}$ and $PM_{2.5}$, while 2037 was the worst-case year for NOx, and 2039 the worst-case year for $SO_2$. Landfill operation and compost facility operation are scheduled to occur in each of the 3 worst-case years, while module construction is only expected to occur in 2037 and 2041. Year 2039 represents the maximum year of LFG generation, and therefore, maximum fugitive LFG and flare emissions. The daily emission rates estimated for each of the pollutants in their worst-case year were compared to the daily mass emission operation thresholds established as CEQA significance criteria by the SCAQMD (SCAQMD, 2015d).

The highest estimated combined daily construction and operation emission totals for each pollutant are presented in Table 11-8. The combined worst-case daily construction and operation emissions for the Proposed Project would exceed the SCAQMD mass daily operational thresholds for NOx, ROG, $PM_{10}$, and $PM_{2.5}$. These estimated increases in maximum daily emissions represent worst-case daily emission estimates, given the conservative approach of combining operation and construction emission estimates for the highest emission year to determine maximum daily emissions, and the variability of facility operation and construction activities on a day-to-day basis. Days when construction activities would not occur would result in lower emissions.

Table 11-8. Worst-Case Proposed Project Construction and Operation Emissions
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| | Emissions (lbs/day) | | | | | |
|---|---|---|---|---|---|---|
| **Emission Source** | **CO** | **$NO_x$** | **ROG** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| Total construction emissions | 297.7 | 33.8 | 7.7 | 0.0 | 221.2 | 48.6 |
| Total landfill operation emissions | 139.0 | 834.4 | 20.0 | 126.7 | 718.5 | 161.9 |
| Total composting operation emissions[a] | 15.4 | 1.8 | 523.4 | 0.0 | 4.3 | 2.0 |
| TOTAL (lbs/day) | 452.1 | **870.0** | **551.1** | 126.7 | **944.0** | **212.5** |
| SCAQMD Thresholds (lbs/day)[b] | 550 | 55 | 55 | 150 | 150 | 55 |

[a] Compost operation process emissions taken from Appendix H-6, Table 1, which assumes that the composted material includes more than 10 percent food waste, and assumes 80 percent control of ROG (VOC) emissions.

[b] Thresholds taken from SCAQMD Significance Thresholds Table, March 2015 (SCAQMD, 2015d).

The potential impacts on ambient air quality associated with the combined construction and operational emissions from onsite sources for the Proposed Project were further analyzed using the AERMOD dispersion modeling system. Results of the modeling were added to representative background levels and compared to the ambient air quality concentrations listed as significance thresholds in Table 11-6, which include both SCAQMD Localized Significance Thresholds (LST) and some of the federal and state ambient air quality standards.

Consistent with the SCAQMD LST methodology, the potential impacts from the combined worst-case construction and operation emissions from onsite sources for the Proposed Project were evaluated for the nearest receptor locations. Predicted worst-case emissions of CO, $PM_{10}$, and $PM_{2.5}$ from onsite sources would occur during the year 2041, predicted worst-case onsite emissions of $SO_2$ would occur

during 2039, and predicted worst-case onsite emissions of NOx would occur during the year 2037. Activities associated with operation and construction would generate emissions of each pollutant at different rates, resulting in different maximum emission years. The dispersion modeling for the impact analysis used the combined emissions estimated from onsite construction and operation sources in the maximum year for each pollutant. The sources included in the modeling impact assessment include activities associated with the construction of Module 12, operation of Module 11, flare operation, composting operation, and onsite vehicle trips associated with operation.

Table 11-9 provides a summary of the modeled results for combined worst-case onsite construction and operation emissions, background levels, and total predicted concentrations, with comparisons to the applicable ambient air quality thresholds. $PM_{2.5}$ and $PM_{10}$ concentrations would be above the LSTs for each of the applicable averaging periods. Concentrations of all other pollutants would be below the ambient standards listed as significance thresholds in Table 11-6.

Table 11-9. Dispersion Modeling Results for Combined Worst-Case Onsite Construction and Operational Emissions
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| Pollutant | Averaging Period | Model Result (µg/m³) | Background (if applicable) (µg/m³) [a] | Total Predicted Concentration (µg/m³) | Threshold (µg/m³) | Above Threshold? |
|---|---|---|---|---|---|---|
| $SO_2$ | 1-hour | 16.3 | 28.8 | 45.1 | 655 (0.25 ppm) | No |
| $SO_2$ | Federal 1-hour [b] | 14.86 | 10.7 | 25.6 | 196 (0.075 ppm) | No |
| $SO_2$ | 3-hour | 9.24 | 26.2 | 35.4 | 1,300 (0.5 ppm) | No |
| $SO_2$ | 24-hour | 2.22 | 5.24 | 7.46 | 105 (0.04 ppm) | No |
| CO | 1-hour | 616 | 3,321 | 3,937 | 23,000 (20 ppm) | No |
| CO | 8-hour | 264 | 1,317 | 1,581 | 10,000 (9 ppm) | No |
| $NO_2$[c] | 1-hour | 57.5 | 124.2 | 182 | 339 (0.18 ppm) | No |
| $NO_2$[c] | Federal 1-hour[d] | 47.8 | 89.4 | 137 | 188 (0.10 ppm) | No |
| $NO_2$[c] | Annual | 0.56 | 26.3 | 26.9 | 57 (0.03 ppm) | No |
| $PM_{10}$[e] | 24-hour | 238 | N/A | N/A | 2.5 | **Yes** |
| $PM_{10}$[e] | Annual | 11.5 | N/A | N/A | 1 | **Yes** |
| $PM_{2.5}$[e] | 24-hour | 48. 5 | N/A | N/A | 2.5 | **Yes** |
| $PM_{2.5}$[e] | Annual | 2.31 | N/A | N/A | 1 | **Yes** |

[a] Background concentrations are the most recent available 3 years of monitoring data over the period 2009-2014.

[b] Total predicted concentration for the federal 1-hour $SO_2$ standard is the 5-year average high 4th high modeled concentration combined with the 3-year average of 99th percentile background concentrations.

[c] The maximum 1-hour and annual $NO_2$ concentration estimates include use of ambient $NO_2$ to NOx ratios of 0.80 (EPA, 2011) and 0.75 (EPA, 2005), respectively.

[d] Total predicted concentration for the federal 1-hour $NO_2$ standard is the 5-year average high 8th high modeled concentration combined with the 3-year average of 98th percentile background concentrations.

[e] Background values are above the threshold, therefore modeled concentrations are compared to the LSTs.

As discussed above, combined emissions of NOx, ROG, $PM_{10}$, and $PM_{2.5}$ from construction and operation would exceed the SCAQMD mass daily operational thresholds. Modeled ambient concentrations resulting from the project-related emissions of $PM_{10}$ and $PM_{2.5}$ would exceed the applicable LSTs. On this basis, air quality impacts associated with combined emissions from construction and operation of the Proposed Project would be significant, and additional mitigation measures were evaluated for their feasibility of implementation. With additional mitigation, impacts from construction and operation of the Proposed Project would be reduced, but would remain potentially significant and unavoidable.

**Project Design Measures**

Same as described above under Impact AQ-4, and listed in Table 11-1.

***Impact AQ-6:*** *Operation would not violate any air quality standard or contribute substantially to an existing or projected air quality violation for CO. Operation impacts due to CO emissions would be less than significant.*

Impact Discussion. A CO hotspot analysis of the intersections that would be affected by the Proposed Project and dispersion modeling of CO emissions that would result from operational activities were conducted to evaluate whether an air quality standard for CO would be violated. The following discussion presents the results of these evaluations.

Tables 11-10 and 11-11 present the peak 1-hour and 8-hour CO concentrations for three scenarios: existing conditions in 2015, 2017 conditions without the Proposed Project, and 2017 conditions with the Proposed Project. Traffic volumes, prepared previously for existing year 2013 and project year 2015, were adjusted for the new analysis years using a growth factor of 2.75 percent per year[3]. The analysis shows that the maximum 1-hour CO concentrations would be well below the national 1-hour standard of 35 ppm and the state 1-hour standard of 20 ppm under all scenarios. The maximum 8-hour concentration also would be well below the national and state 8-hour standards of 9 ppm. The Proposed Project would not cause an exceedance of the CO ambient air standards.

Table 11-10. Maximum Predicted 1-hour CO Concentrations
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| Scenario | Maximum Modeled 1-hour CO Concentration (ppm) | Background CO Concentration (ppm) | Total 1-hour CO Concentration (ppm) |
|---|---|---|---|
| SR-126 and Wolcott Way | | | |
| Existing Conditions (2015) | 0.2 | 2.9 | 3.1 |
| 2017 Without Proposed Project | 0.1 | 2.9 | 3.0 |
| 2017 With Proposed Project | 0.1 | 2.9 | 3.0 |
| SR-126 and Commerce Center Drive | | | |
| Existing Conditions (2015) | 0.4 | 2.9 | 3.3 |
| 2017 Without Proposed Project | 0.3 | 2.9 | 3.2 |
| 2017 With Proposed Project | 0.3 | 2.9 | 3.2 |
| State Threshold | | | 20 |
| National Threshold | | | 35 |

Note:
Background concentrations are the highest observed 1-hour CO concentrations from 2012 to 2014.

[3] The annual growth rate is based upon direction received from the Los Angeles County Department of Public Works, Traffic and Lighting Division (see signed MOU in Appendix G of the Draft EIR).

Table 11-11. Maximum Predicted 8-hour CO Concentrations
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| Scenario | Maximum Modeled 8-hour CO Concentration (ppm) | Background CO Concentration (ppm) | Total 8-hour CO Concentration (ppm) |
|---|---|---|---|
| SR-126 and Wolcott Way | | | |
| Existing Conditions (2015) | 0.14 | 1.15 | 1.29 |
| 2017 Without Proposed Project | 0.07 | 1.15 | 1.22 |
| 2017 With Proposed Project | 0.07 | 1.15 | 1.22 |
| SR-126 and Commerce Center Drive | | | |
| Existing Conditions (2015) | 0.28 | 1.15 | 1.43 |
| 2017 Without Proposed Project | 0.21 | 1.15 | 1.36 |
| 2017 With Proposed Project | 0.21 | 1.15 | 1.36 |
| National and State Threshold | | | 9 |

Notes:
Existing background concentrations are the highest observed 8-hour CO concentrations from 2010 to 2012, the latest 3 years of data available.
The maximum 8-hour CO concentration is calculated by multiplying the project-level 1-hour CO contribution by the 8-hour persistence factor (0.7) and adding the 8-hour CO background concentration.

Based on the modeled results above, the Proposed Project would not cause or significantly contribute to a modeled CO violation. Therefore, operation of the Proposed Project would have a less-than-significant impact for CO at offsite receptors and at hotspots near roadways.

**Project Design Measures**

Same as previously described under Impact AQ-4, and listed in Table 11-1.

***Impact AQ-7:*** *Combined operation and construction would not expose sensitive receptors to substantial pollutant concentrations. Combined operation and construction impacts at sensitive receptors would be less than significant, based on the results of a health risk assessment.*

Impact Discussion. An HRA was conducted to evaluate potential human health risks associated with exposure of sensitive receptors to pollutant concentrations, in this case, project-related emissions of TACs. The risk categories evaluated include individual lifetime cancer risk, non-cancer health effects from chronic (long-term) exposure, and non-cancer health effects from acute (short-term) exposure. At the recommendation of SCAQMD staff, the HRA was performed following both the previous guidance outlined in the *Air Toxics Hot Spots Program Risk Assessment Guidelines* (Office of Environmental Health Hazard Assessment [OEHHA], 2003), and the latest guidance outlined in the *Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2015). The evaluation of potential impacts and determination of significance for potential impacts in this chapter were based on the 2015 OEHHA guidance. Results obtained using the 2003 guidance are included for continuity with the Original Draft EIR.

Tables 11-12 and 11-13 present the predicted cancer and non-cancer health risks associated with lifetime and workplace exposures to the combined operation and construction emissions estimated for the Proposed Project. Results obtained using the 2003 guidance are presented in Table 11-12, and results for the 2015 guidance are presented in Table 11-13.

Table 11-12. Operation and Construction Emissions Risk Summary (2003 Methodology)
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Receptor Location | Max Cancer | Max HIC | Max HIA |
|---|---|---|---|
| MEIR | 3.5 per million | 0.049 | 0.64 |
| MEIW | 0.78 per million | 0.056 | 0.91 |
| Sensitive Receptor | 0.49 per million | 0.0039 | 0.45 |
| SCAQMD Significance Threshold | 10 in 1 million | 1.0 | 1.0 |

Notes:
MEIR = residential maximally exposed individual
MEIW = worker maximally exposed individual

Table 11-13. Operation and Construction Emissions Risk Summary (2015 Methodology)
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Receptor Location | Max Cancer | Max HIC | Max HIA |
|---|---|---|---|
| MEIR | 9.3 per million | 0.049 | 0.64 |
| MEIW | 0.85 per million | 0.056 | 0.91 |
| Sensitive Receptor | 1.2 per million | 0.0039 | 0.44 |
| SCAQMD Significance Threshold | 10 in 1 million | 1.0 | 1.0 |

The TAC emission rates used in the HRA analysis were divided into short-term (for acute risks) and long-term (for cancer and chronic risks) emission rates for modeling of potential exposure concentrations. The 2039 year was chosen for the short-term emissions analysis, because it represented the highest flare and fugitive LFG emissions. Long-term emissions were calculated using the highest 30-year average emissions.

Using the 2003 OEHHA guidance, the incremental increase in lifetime cancer risk associated with exposure to combined construction and operations emissions at the location of the residential maximally exposed individual (MEIR) is predicted to be 3.5 in 1 million. The MEIR location would be approximately 250 meters northwest from the facility boundary. The maximum incremental increase in cancer risk predicted for worker exposures at the location of the workplace maximally exposed individual (MEIW) is predicted to be 0.78 in 1 million. The MEIW location would be approximately 220 meters from the facility's northwest boundary. The maximum incremental increase in lifetime cancer risk predicted for the location of the nearest sensitive receptor is predicted to be 0.49 in 1 million. Sensitive receptor locations include schools, hospitals, convalescent homes, day-car centers, and other locations where children, chronically ill individuals or other sensitive persons could be exposed to TACs. The sensitive receptor location would be approximately 1,750 meters from the facility's northeast boundary. The locations of the maximally exposed receptors for cancer risk and chronic impacts for construction and operation emissions are shown on Figure 11-4. Maximum impacts predicted for the MEIR, MEIW, and sensitive receptor locations using the 2003 OEHHA guidance would not exceed the SCAQMD cancer risk significance threshold of 10 in 1 million, under any of the scenarios.

The cancer risk estimates discussed in the above paragraph were developed using the 2003 OEHHA guidance for determining incremental increases in lifetime cancer risk associated with human exposures to estimated emissions from the Proposed Project operation and construction. Per the 2003 OEHHA guidance, this study conservatively assumed that operation and construction emissions would occur simultaneously, 24 hours per day continuously for 70 years for residential exposures, and 8 hours per day, 5 days per week, for 30 years for workplace exposures.

OEHHA adopted a revised risk assessment methodology in 2015. Per the 2015 OEHHA guidance, it was conservatively assumed that operation and construction emissions would occur simultaneously, 24 hours per day continuously for 30 years for residential exposures, and 8 hours per day, 5 days per week, for 25 years for workplace exposures. Though exposure durations decreased, changes to the exposure pathway methodology in the 2015 OEHHA guidance have resulted in overall increases in predicted health risks.

Using the 2015 OEHHA guidance, the incremental increase in lifetime cancer risk associated with exposure to combined construction and operations emissions at the location of the MEIR is predicted to be 9.3 in 1 million. The MEIR location would be approximately 250 meters northwest from the facility boundary. The maximum incremental increase in cancer risk predicted for worker exposures at the location of the MEIW is predicted to be 0.85 in 1 million. The MEIW location would be approximately 220 meters from the facility's northwest boundary. The maximum incremental increase in lifetime cancer risk predicted for the location of the nearest sensitive receptor is predicted to be 1.2 in 1 million. The sensitive receptor location would be approximately 1,750 meters from the facility's northeast boundary. The locations of the maximally exposed receptors using the 2015 guidance for cancer risk and chronic impacts for construction and operation emissions are shown on Figure 11-5. Maximum impacts predicted for the MEIR, MEIW, and sensitive receptor locations using the 2015 OEHHA guidance would not exceed the SCAQMD cancer risk significance threshold of 10 in 1 million, under any of the scenarios.

The chronic and acute (HIC and HIA) non-carcinogenic impacts predicted for exposure to estimated Proposed Project emissions would be below the SCAQMD significance threshold of 1.0 for all receptors.

As noted above, the incremental increase in lifetime cancer risk associated with exposure to combined construction and operation emissions at the location of the MEIR, calculated based on the 2015 OEHHA guidance, was predicted to be 9.3 in 1 million. Because the predicted cancer risk, per individual unit, was greater than 1 in 1 million, the cancer burden was calculated for each census block receptor. Cancer burden is defined as the estimated increase in the occurrence of cancer cases in a population resulting from exposure to carcinogenic air contaminants. Based on the cancer risk estimated using the 2015 OEHHA Guidance, the cancer burden was predicted to be 0.01 excess cancer cases, which is below the SCAQMD threshold of 0.5 excess cancer cases. Based on the cancer risk estimated using the 2003 OEHHA Guidance, the cancer burden was predicted to be 0.004, which is also below the SCAQMD threshold of 0.5 excess cancer cases. The HRA conducted to evaluate exposure of sensitive receptors to pollutant concentrations demonstrates that the predicted impacts would be less than significant.

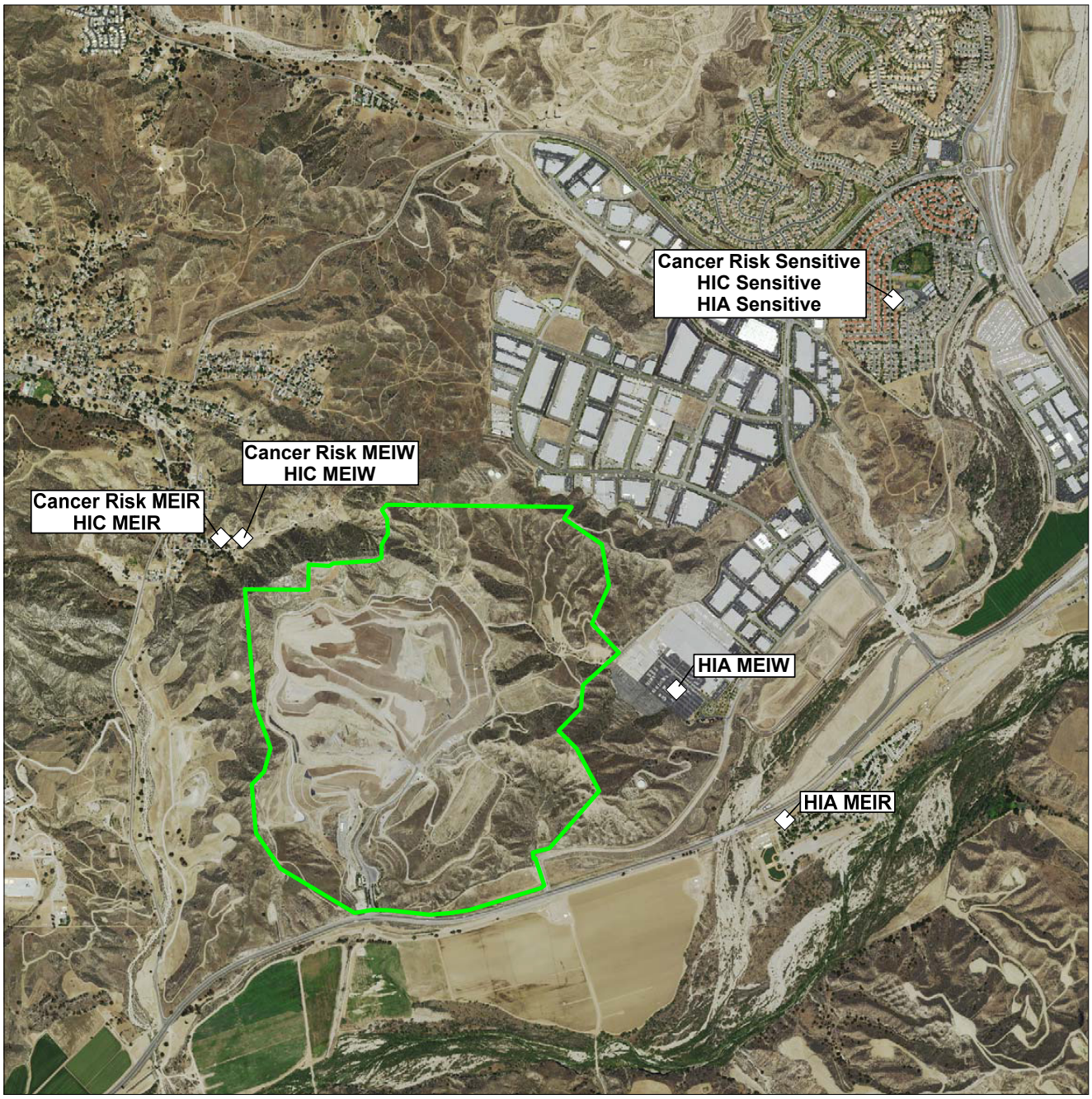
**Project Design Measures**

Same as previously described under Impact AQ-4, and listed in Table 11-1.

***Impact AQ-8:*** *Expanded landfill operation would not create objectionable odors affecting a substantial number of people. Operation impacts would be less than significant.*

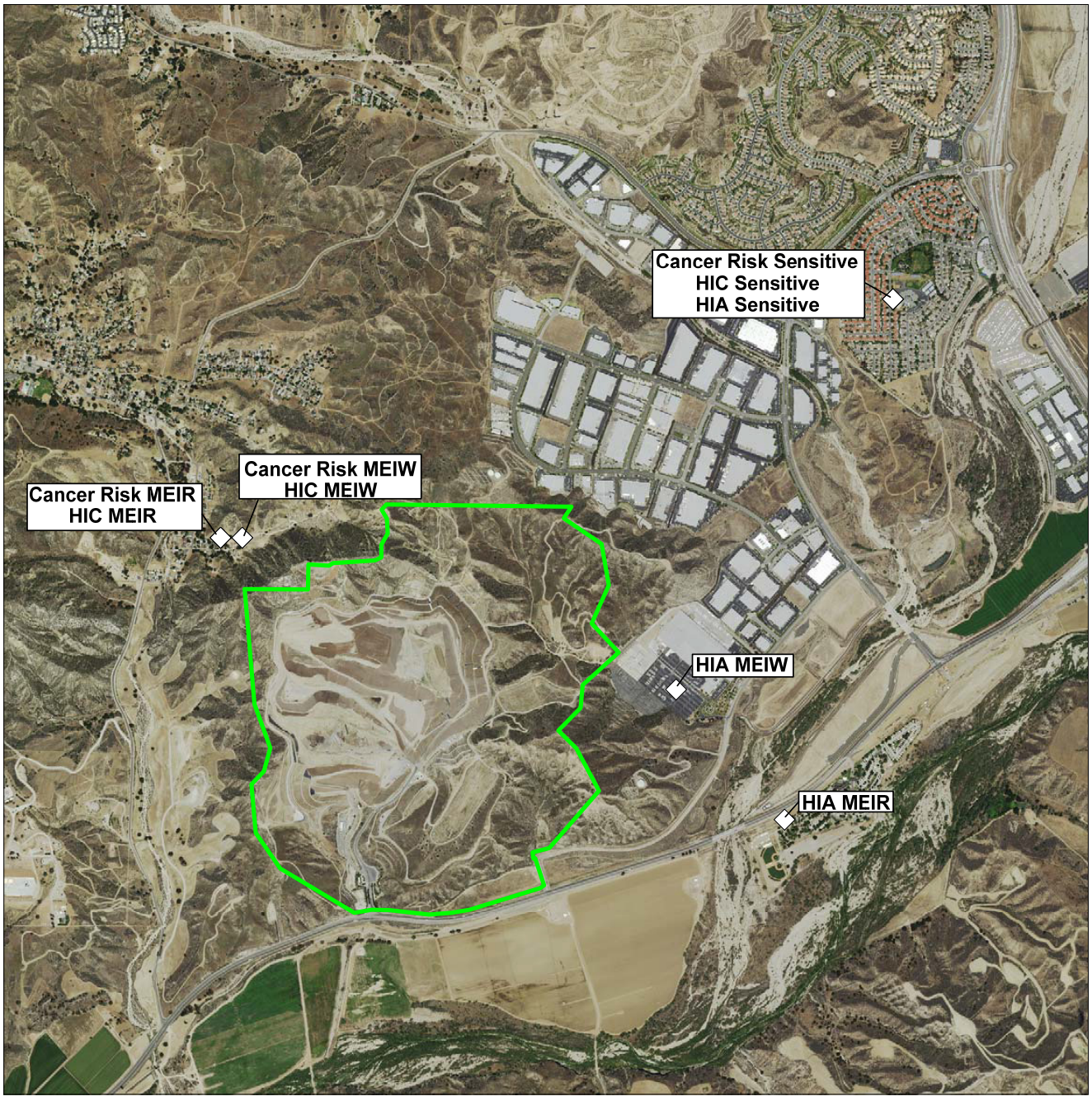
Impact Discussion. The Proposed Project would introduce several changes at CCL that could result in an increased potential for odor impacts.

First, the Proposed Project would include an increase in daily waste disposal tonnage, from 6,000 to a maximum of 12,000 tons per day. This would result in an increased potential for odors from the aerobic decomposition of incoming waste, due to additional loads and the increased size of the working face. CCL would continue to actively preempt odors through the landfill's waste exclusion program and through best operating practices for sanitary landfill waste disposal. If odors occur, CCL would continue to aggressively manage such events, using methods such as applying odor neutralizing agents or strategically placing large fans on the landfill to disperse odors.




MEIR: residential maximally exposed individual
MEIW: workplace maximally exposed individual
HIC: chronic hazard index
HIA: acute hazard index

**Figure 11.4.**
**Maximum Health Impact Locations from Proposed Project Construction and Operation**
**2003 OEHHA Guidance**
*Chiquita Canyon Landfill*
*Master Plan Revision*




MEIR: residential maximally exposed individual
MEIW: workplace maximally exposed individual
HIC: chronic hazard index
HIA: acute hazard index

**Figure 11.5.**
**Maximum Health Impact Locations from Proposed Project Construction and Operation**
**2015 OEHHA Guidance**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Second, the Proposed Project would include both a horizontal and vertical expansion of the existing footprint of the landfill. A horizontal extension of the waste footprint would not be expected to result in increased odors because the working face would continue to be covered at least daily. Similarly, while it might seem that a vertical extension of the waste footprint would result in increased odors for nearby receptors, the opposite typically would occur. When the terrain surrounding a landfill is at a higher elevation than the odor sources, as is the case at CCL, larger impacts are seen right at the project boundary, as potential odor plumes do not have the time or buoyancy to elevate before reaching receptors. And as the elevation of the potential odor source increases, potential odor plumes are likely to be found further downwind, which provides more time for odors to disperse in the ambient air, leading to reduced impacts.

Third, the Proposed Project would include the placement of additional waste over a longer period of time, which would contribute to the production of LFG through anaerobic digestion of the buried waste. CCL would continue to operate the GCCS, and would expand the GCCS for the Proposed Project. Landfill surfaces would continue to be monitored regularly for evidence of gaseous emissions. If emissions are found they would be corrected by adjusting the GCCS or recompacting the cover soils, or both.

Based on the above discussion, potential odor impacts from expanded landfill operation associated with the Proposed Project are anticipated to be less than significant.

***Impact AQ-9: Operation of the composting facility would potentially create objectionable odors affecting a substantial number of people. Operation impacts would be less than significant after mitigation.***

The Proposed Project would include a maximum 560 tons per day mixed organics composting facility. Because the compost facility is evaluated as a new use at CCL (the previous compost facility ceased operation in 2009), odors associated with the facility would be potentially significant without processes in place to minimize odor.

Odor management of a composting facility requires knowing and paying attention to the composting process, including feedstock characteristics, odor sources, odor releases, and meteorological and topographic conditions. The conditions that lead to an offsite odor impact can be complex.

All commercial composting facilities in California are required to implement an OIMP, as codified in CCR Title 14 (Natural Resources), Division 7 (CIWMB), Chapter 3.1 (Compostable Materials Handling Operations and Facilities Regulatory Requirements), Article 3 (Report of Facility Information), Section 17863.4 (Odor Impact Minimization Plan). An OIMP would be required for either of the composting options proposed (windrow or aerated static pile).

The OIMP process relies on a philosophy of constant improvement, rather than prescriptive standards. The OIMP must describe design and operational procedures for minimizing odors. The OIMP must also describe topographic and meteorological conditions and a complaint response protocol.

Requirements of an OIMP include:

> a) All compostable material handling operations and facilities shall prepare, implement, and maintain a site-specific OIMP. A complete plan shall be submitted to the Local Enforcement Agency (LEA).
>
> (b) OIMPs shall provide guidance to onsite operation personnel by describing, at a minimum, the following items. If the operator will not be implementing any of these procedures, the plan shall explain why it is not necessary.
>
> > (1) an odor monitoring protocol which describes the proximity of possible odor receptors and a method for assessing odor impacts at the locations of the possible odor receptors; and,

(2) a description of the meteorological conditions that affect migration of odors and/or transport of odor-causing material offsite. Seasonal variations that affect wind velocity and direction shall also be described; and,

(3) a complaint response protocol; and,

(4) a description of design considerations and/or projected ranges of optimal operation to be employed in minimizing odor, including method and degree of aeration, moisture content of materials, feedstock characteristics, airborne emission production, process water distribution, pad and site drainage and permeability, equipment reliability, personnel training, weather event impacts, utility service interruptions, site-specific concerns, facility enclosure; and,

(5) a description of operating procedures for minimizing odor, including aeration, moisture management, feedstock quality, drainage controls, pad maintenance, wastewater pond controls, storage practices (e.g., storage time and pile geometry), contingency plans (i.e., equipment, water, power, and personnel), biofiltration, and tarping.

(c) The OIMP shall be revised to reflect any changes, and a copy shall be provided to the LEA, within 30 days of those changes.

(d) The OIMPs shall be reviewed annually by the operator to determine if any revisions are necessary.

(e) The OIMP shall be used by the LEA to determine whether or not the operation or facility is following the procedures established by the operator. If the LEA determines that the OIMP is not being followed, the LEA may issue a Notice and Order (pursuant to Section 18304) to require the operator to either comply with the OIMP or to revise it.

(f) If the OIMP is being followed, but the odor impacts are still occurring, the LEA may issue a Notice and Order (pursuant to Section 18304) requiring the operator to take additional reasonable and feasible measures to minimize odors.

The composting facility is typically inspected monthly or quarterly by the LEA. The LEA determines whether or not the facility has an OIMP and is implementing the practices described in the OIMP. The OIMP would be reviewed at least annually and revised if necessary.

With implementation of the OIMP, potential odor impacts from the Proposed Project as a result of the composting facility are anticipated to be less than significant.

**Project Design Measures**

Project Design Measures related to odor impacts are described above.

# 11.7 Mitigation Measures

Even with continuation of current emission reduction measures and implementation of BMPs as Project Design Measures, the Proposed Project would have potentially significant air quality impacts due to estimated NOx, ROG, $PM_{10}$, and $PM_{2.5}$ emissions from construction and operation. Additional mitigation measures were evaluated for their feasibility. Potential mitigation measures evaluated included:

| Potential Mitigation Measure | Feasibility Evaluation |
|---|---|
| Design the site such that any check-in point for trucks is inside the facility to ensure that there are no trucks queuing outside of the facility | The site entrance has been designed to ensure that CCL can accommodate all Proposed Project traffic without queuing outside the facility. |
| Use certified street sweepers that comply with SCAQMD Rule 1186.1 | Measure is feasible. |

| Potential Mitigation Measure | Feasibility Evaluation |
|---|---|
| Have truck routes clearly marked with trailblazer signs so trucks will stay on truck routes established by the lead agency and not enter residential areas | Because CCL does not own and manage a fleet of waste collection vehicles, it is not possible to enforce the use of specified truck routes. However, given the availability of direct routes to and from CCL, it is unlikely that trucks would choose to utilize a residential area either going to or leaving the site. |
| Use innovative approaches to reducing potential air emissions from construction of buildings, such as modular building products, where prefabricated portions of structures are assembled elsewhere and are erected at the construction site, as feasible. This would eliminate the need for onsite painting, a majority of the plumbing, and other consumer product usage. | Measure is feasible. |
| Provide offsetting emission reduction credits for predicted net emission increases from sources requiring permitting under SCAQMD New Source Review regulations. | Measure is feasible. |

Based on the above discussion, the following mitigation measures have been identified to minimize potentially significant air quality impacts:

- **AQ-1:** The applicant shall use certified street sweepers that comply with SCAQMD Rule 1186.1.
- **AQ-2:** The applicant shall use innovative approaches to reducing potential air emissions from construction of buildings, such as modular building products, where prefabricated portions of structures are assembled elsewhere and are erected at the construction site, as feasible. This would eliminate the need for onsite painting, a majority of the plumbing, and other consumer product usage.
- **AQ-3:** The applicant shall provide offsetting emission reduction credits for predicted net emission increases from sources requiring permitting under New Source Review regulations.

Additionally, the following mitigation measure has been identified for operation of the composting facility:

- **AQ-4:** Prior to operation of the composting facility, the applicant shall develop an OIMP pursuant to the requirements of the CCR, Title 14, Division 7, Chapter 3.1, Article 3, and Section 17863.4. The OIMP shall include design considerations and operating strategies to control compost facility odors, up to and including facility enclosure. CCL shall comply with the OIMP during compost facility operation.

# 11.8 Significance After Mitigation

Impacts from the Proposed Project would be substantially reduced by implementing the emission reduction measures and BMPs incorporated as Project Design Measures, listed in Table 11-1. Even with implementation of additional mitigation measures, the Proposed Project would potentially result in a significant, unmitigatable air quality impact for NOx, ROG, $PM_{10}$, and $PM_{2.5}$, if maximum construction and operation emissions were to occur simultaneously. This finding is based on the SCAQMD-requested approach of conservatively combining the maximum daily emission estimates for operation and construction at the facility, and comparing the sum to the SCAQMD operational significance thresholds. These combined impacts do not occur simultaneously throughout the life of the project.

# 11.9 Cumulative Impacts

The cumulative impact analysis considers the combined air quality impacts of the Proposed Project with the nearby reasonably foreseeable projects identified in Chapter 3.0, General Setting and Resource Area Analysis of the Original Draft EIR. The projects discussed in Chapter 3.0 would add a combination of residential, commercial, open space, public, and industrial uses in the vicinity of the Proposed Project. Due to their proximity to the Proposed Project, these projects would most likely result in cumulative air quality impacts related to construction and operation, depending on their timing. Specific implementation timelines for many of the projects identified in Chapter 3.0 of the Original Draft EIR are not available. For example, the Newhall Ranch developments, located immediately south, east, and west of the Proposed Project, would be likely to result in air quality impacts related to project construction and operation. Timelines for the Newhall Ranch developments are not available; construction is not expected to commence until after 2016.

## 11.9.1 Cumulative Construction Impacts

### 11.9.1.1 Criteria Pollutant Emission Impacts

As discussed previously in this section, the construction activities associated with the CCL Proposed Project are included in the Proposed Project operational profile, however, construction of the nearby proposed projects would also result in increases of criteria air pollutants. Many of the proposed projects would use off-road equipment for grading and construction activities, leading to emissions of pollutants such as ozone precursors (NOx and ROG) and $PM_{2.5}$, for which the air basin is designated as nonattainment. SCAQMD has general mitigation and design measures to control ozone precursor emissions and particulate emissions due to windblown dust. It is anticipated that these additional projects would employ these mitigation and design measures to reduce construction-related emissions.

### 11.9.1.2 Health Impacts

As described previously in this section, the potential health impacts associated with combined construction- and operation-related TAC emissions from the Proposed Project have been conservatively analyzed for comparison to the applicable thresholds. The construction of the nearby proposed projects would also result in air toxic emissions due to construction equipment exhaust; specifically, diesel particulate matter. Health risk impacts associated with human exposure to diesel particulate matter from construction typically occur near the project construction site. Construction emissions are also generally temporary in nature. Ideally, the construction of the nearby proposed projects would include mitigation and design measures to reduce air toxic emissions and the associated health impacts.

## 11.9.2 Cumulative Operation and Construction Impacts

### 11.9.2.1 Criteria Pollutant Emission Impacts

Potential cumulative criteria pollutant emission impacts resulting from operation and construction of the Proposed Project were assessed in conjunction with emissions from other reasonably foreseeable projects proposed in the area. These additional foreseeable projects consist of 13 residential developments, 3 commercial developments, 5 industrial developments, and 1 transportation improvement project.

Table 11-8 presents the operation and construction emissions associated with the Proposed Project in the project year 2041 (the year with the highest potential combined emissions). These combined emissions would exceed the SCAQMD daily mass emission thresholds for NOx, ROG, $PM_{10}$ and $PM_{2.5}$. Criteria pollutant emissions resulting from residential and commercial expansion near the Proposed Project site would result primarily from increased motor vehicle travel and off-road equipment use.

The proposed additional development in the area would not only increase emissions of criteria air pollutants generated, but would also add new residential, commercial, and sensitive receptors. Because CCL is currently operating, it is reasonably assumed that future projects would consider the landfill when building future homes, businesses, and schools. Cumulative increases in maximum daily emissions would result in a significant cumulative impact on air quality for NOx, ROG, $PM_{10}$, and $PM_{2.5}$.

The potential impacts on ambient air quality associated with cumulative analysis of the combined construction and operational emissions from onsite sources for the Proposed Project were further analyzed using the AERMOD dispersion modeling system. An enhanced receptor grid was used to capture future land use changes due to cumulative projects. Results of the modeling were added to representative background levels and compared to the ambient air quality concentrations listed as significance thresholds in Table 11-6, which include both SCAQMD LSTs and some of the federal and state ambient air quality standards.

Table 11-14 provides a summary of the modeled results for cumulative analysis of combined worst-case onsite construction and operation emissions, background levels, and total predicted concentrations, with comparisons to the applicable ambient air quality thresholds. $PM_{2.5}$ and $PM_{10}$ concentrations would be above the LSTs for each of the applicable averaging periods. Concentrations of all other pollutants would be below the ambient standards listed as significance thresholds in Table 11-6.

Table 11-14. Dispersion Modeling Results for Cumulative Analysis of Combined Worst-Case Onsite Construction and Operational Emissions

*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Pollutant | Averaging Period | Model Result (µg/m³) | Background (if applicable) (µg/m³)[a] | Total Predicted Concentration (µg/m³) | Threshold (µg/m³) | Above Threshold? |
|---|---|---|---|---|---|---|
| $SO_2$ | 1-hour | 19.4 | 28.8 | 48.2 | 655 (0.25 ppm) | No |
| $SO_2$ | Federal 1-hour[b] | 17.7 | 10.7 | 28.4 | 196 (0.075 ppm) | No |
| $SO_2$ | 3-hour | 11.6 | 26.2 | 37.8 | 1,300 (0.5 ppm) | No |
| $SO_2$ | 24-hour | 2.2 | 5.24 | 7.44 | 105 (0.04 ppm) | No |
| CO | 1-hour | 616 | 3,321 | 3,937 | 23,000 (20 ppm) | No |
| CO | 8-hour | 264 | 1,317 | 1,581 | 10,000 (9 ppm) | No |
| $NO_2$[c] | 1-hour | 82.6 | 124.2 | 207 | 339 (0.18 ppm) | No |
| $NO_2$[c] | Federal 1-hour[d] | 77.6 | 89.4 | 167 | 188 (0.10 ppm) | No |
| $NO_2$[c] | Annual | 3.37 | 26.3 | 29.7 | 57 (0.03 ppm) | No |
| $PM_{10}$[e] | 24-hour | 267 | N/A | N/A | 2.5 | Yes |
| $PM_{10}$[e] | Annual | 60.6 | N/A | N/A | 1 | Yes |
| $PM_{2.5}$[e] | 24-hour | 64.4 | N/A | N/A | 2.5 | Yes |
| $PM_{2.5}$[e] | Annual | 14.2 | N/A | N/A | 1 | Yes |

[a] Background concentrations are the most recent available 3 years of monitoring data over the period 2009-2014.

[b] Total predicted concentration for the federal 1-hour $SO_2$ standard is the 5-year average high 4th high modeled concentration combined with the 3-year average of 99th percentile background concentrations.

[c] The maximum 1-hour and annual $NO_2$ concentration estimates include use of ambient $NO_2$ to $NO_x$ ratios of 0.80 (EPA, 2011) and 0.75 (EPA, 2005), respectively.

[d] Total predicted concentration for the federal 1-hour $NO_2$ standard is the 5-year average high $8^{th}$ high modeled concentration combined with the 3-year average of 98th percentile background concentrations.

[e] Background values are above the threshold, therefore modeled concentrations are compared to the LSTs.

Project Design Measures and mitigation measures to reduce potential significant impacts on air quality due to NOx, ROG, $PM_{10}$, and $PM_{2.5}$ emissions from the CCL Proposed Project have been identified. Additional control measures for the other proposed projects in the area may be included and incorporated within their project-specific implementation plans. Most of the emissions generated from other nearby projects would be from increases in associated passenger and commercial vehicle traffic, and from off-road construction equipment used to build the developments. The overall cumulative impact from construction and operational activities would be significant and unavoidable for NOx, ROG, $PM_{10}$, and $PM_{2.5}$.

### 11.9.2.2 Localized CO Impacts

A CO hotspot analysis of the intersections affected by the Proposed Project and other cumulative projects in the area and dispersion modeling of emissions from operation activities were conducted for the Proposed Project to evaluate whether an air quality standard for CO would be violated. Cumulative projects expected to affect traffic conditions in the project area would include the Newhall Ranch developments and the SR-126 Improvements Project. The SR-126 Improvements Project would improve traffic conditions at the SR 126/Commerce Center Drive intersection and the project is proposed to accommodate future traffic growth in the area. The Newhall Ranch developments would add to cumulative traffic impacts on the surrounding road network.

Tables 11-15 and 11-16 present the peak 1-hour and 8-hour CO concentrations for three scenarios: existing conditions in 2015, 2017 conditions without the Proposed Project, and 2017 conditions with the Proposed Project. Traffic volumes, previously prepared for existing year 2013 and project year 2015, were adjusted for the new analysis years using a growth factor of 2.75 percent per year. The analysis shows that the maximum 1-hour CO concentrations would be well below the national standard of 35 ppm and the state standard of 20 ppm under all scenarios. The maximum 8-hour concentration also would be well below the national and state standards of 9 ppm. The Proposed Project and other cumulative projects would not cause an exceedance of the CO ambient air standards.

Table 11-15. Maximum Predicted 1-hour CO Concentrations
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Scenario | Maximum Modeled 1-hour CO Concentration (ppm) | Background CO Concentration (ppm) | Total 1-hour CO Concentration (ppm) |
|---|---|---|---|
| SR-126 and Wolcott Way | | | |
| Existing Conditions (2015) | 0.2 | 2.9 | 3.1 |
| 2017 With Cumulative Projects and Without Proposed Project | 0.1 | 2.9 | 3.0 |
| 2017 With Cumulative Projects and Proposed Project | 0.1 | 2.9 | 3.0 |
| SR-126 and Commerce Center Drive | | | |
| Existing Conditions (2015) | 0.4 | 2.9 | 3.3 |
| 2017 With Cumulative Projects and Without Proposed Project | 0.3 | 2.9 | 3.2 |
| 2017 With Cumulative Projects and Proposed Project | 0.3 | 2.9 | 3.2 |
| State Threshold | | | 20 |
| National Threshold | | | 35 |

Note:
Background concentrations are the highest observed 1-hour CO concentrations from 2012 to 2014.

Table 11-16. Maximum Predicted 8-hour CO Concentrations
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Scenario | Maximum Modeled 8-hour CO Concentration (ppm) | Background CO Concentration (ppm) | Total 8-hour CO Concentration (ppm) |
|---|---|---|---|
| SR-126 and Wolcott Way | | | |
| Existing Conditions (2015) | 0.14 | 1.15 | 1.29 |
| 2017 With Cumulative Projects and Without Proposed Project | 0.07 | 1.15 | 1.22 |
| 2017 With Cumulative Projects and Proposed Project | 0.07 | 1.15 | 1.22 |
| SR-126 and Commerce Center Drive | | | |
| Existing Conditions (2015) | 0.28 | 1.15 | 1.43 |
| 2017 With Cumulative Projects and Without Proposed Project | 0.21 | 1.15 | 1.36 |
| 2017 With Cumulative Projects and Proposed Project | 0.21 | 1.15 | 1.36 |
| National and State Threshold | | | 9 |

Notes:
Existing background concentrations are the highest observed 8-hour CO concentrations from 2010 to 2012, the latest 3 years of data available.
The maximum 8-hour CO concentration is calculated by multiplying the project-level 1-hour CO contribution by the 8-hour persistence factor (0.7) and adding the 8-hour CO background concentration.

Based on the cumulative modeled results above, the Proposed Project would not cause or significantly contribute to a cumulative modeled CO violation. Therefore, operation of the Proposed Project would have a less-than-significant cumulative impact for CO at offsite receptors and at hotspots near roadways.

### 11.9.2.3 Health Impacts

The evaluation of potential cumulative impacts and determination of significance for potential cumulative impacts in this chapter were based on the 2015 OEHHA guidance. Results obtained using the 2003 guidance are included for continuity with the Original Draft EIR.

Tables 11-17 and 11-18 present a summary of the maximum cumulative health impacts predicted for lifetime and workplace exposures to operation and construction emissions associated with the Proposed Project.

The maximum cumulative combined construction and operational impact for predicted lifetime cancer risk using the 2003 OEHHA guidance at the location of the MEIR is predicted to be 5.3 in 1 million, and the same result is predicted at the location of the sensitive receptor. The maximum cumulative combined construction and operational impact for predicted lifetime cancer risk at the location of the MEIW is predicted to be 1.0 in 1 million. The MEIR, MEIW, and sensitive impacts are predicted for a receptor location 270 meters north from the facility boundary. The locations of the predicted cumulative maximum health impacts using the 2003 guidance are shown on Figure 11-6. Maximum cumulative impacts using the 2003 OEHHA guidance at the MEIR, MEIW, and sensitive receptor locations would not exceed the SCAQMD cancer risk significance threshold of 10 in 1 million.

The maximum cumulative combined construction and operational impact for predicted lifetime cancer risk using the 2015 OEHHA guidance at the location of the MEIR is predicted to be 15 in 1 million, and the same result is predicted at the location of the sensitive receptor. The maximum cumulative combined construction and operational impact for predicted lifetime cancer risk at the location of the

MEIW is predicted to be 1.3 in 1 million. The MEIR, MEIW, and sensitive impacts are predicted for a receptor location 200 meters west from the facility boundary in the Newhall Ranch development. The locations of the predicted cumulative maximum health impacts using the 2015 guidance are shown on Figure 11-7. Maximum cumulative impacts using the 2015 OEHHA guidance at the MEIR and sensitive receptor locations would exceed the SCAQMD cancer risk significance threshold of 10 in 1 million. The HIC and HIA non-carcinogenic cumulative impacts from construction and operation would be below the SCAQMD significance threshold of 1.0.

Table 11-17. Operation and Construction Emissions Risk Summary (2003 Methodology)
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Receptor Location | Max Cancer | Max HIC | Max HIA |
|---|---|---|---|
| MEIR | 5.3 in a million | 0.082 | 0.99 |
| MEIW | 1.0 in a million | 0.082 | 0.99 |
| Sensitive Receptor | 5.3 in a million | 0.082 | 0.99 |
| SCAQMD Significance Threshold | 10 in 1 million | 1.0 | 1.0 |

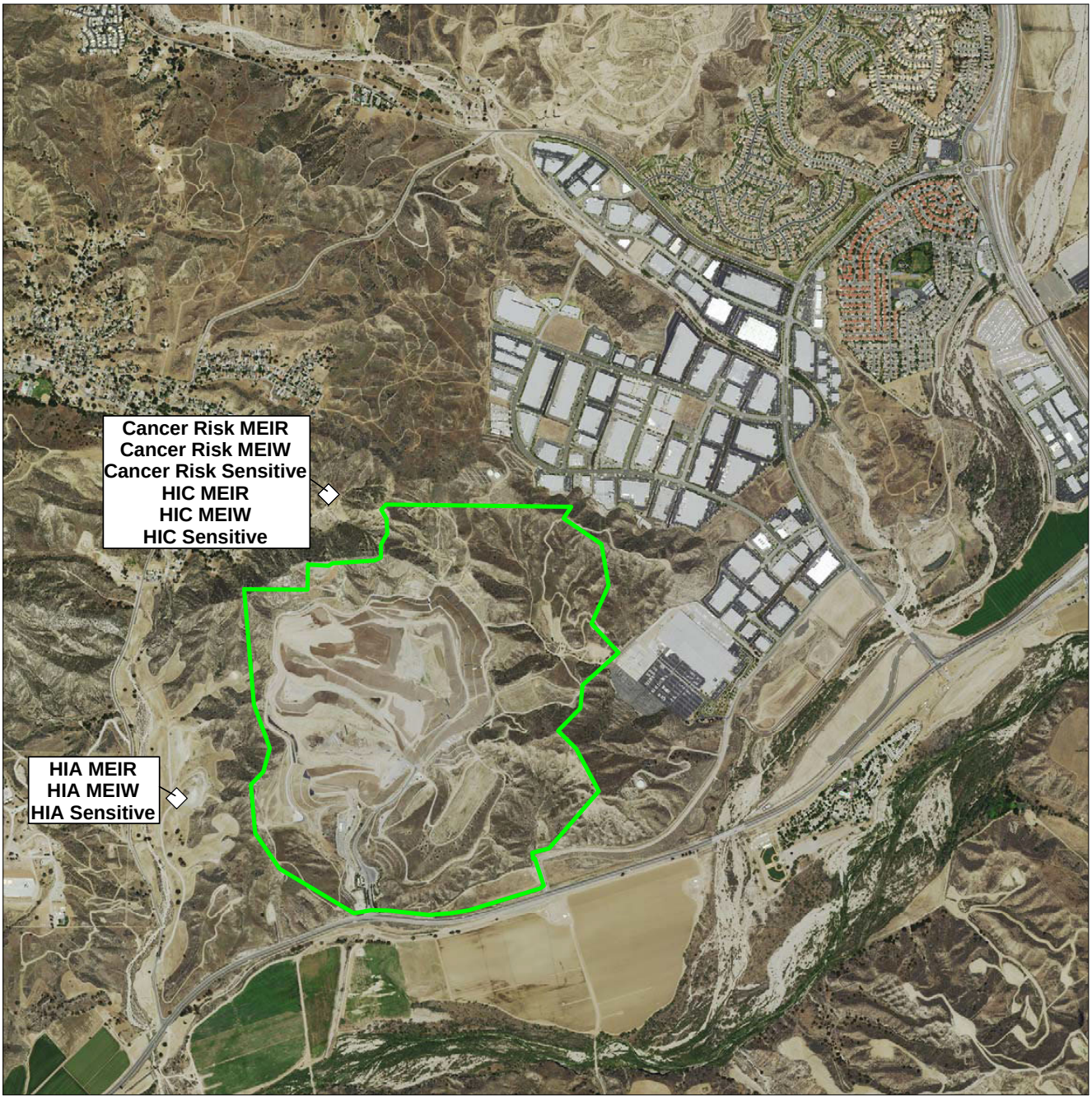
Table 11-18. Operation and Construction Emissions Risk Summary (2015 Methodology)
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Receptor Location | Max Cancer | Max HIC | Max HIA |
|---|---|---|---|
| MEIR | 15 in a million | 0.082 | 0.99 |
| MEIW | 1.3 in a million | 0.082 | 0.99 |
| Sensitive Receptor | 15 in a million | 0.082 | 0.99 |
| SCAQMD Significance Threshold | 10 in 1 million | 1.0 | 1.0 |

The proposed additional development in the area would not only increase the emissions of TACs generated in the area, but would also add new residential, commercial, and sensitive receptors. The emissions and impacts would, for the most part, be localized around each respective project. Using the 2015 OEHHA guidance, cumulative projects plus the Proposed Project would increase cancer risk by more than the 10 in 1 million threshold for residences, workers, and sensitive receptors near the landfill project site, indicating a significant cumulative impact.

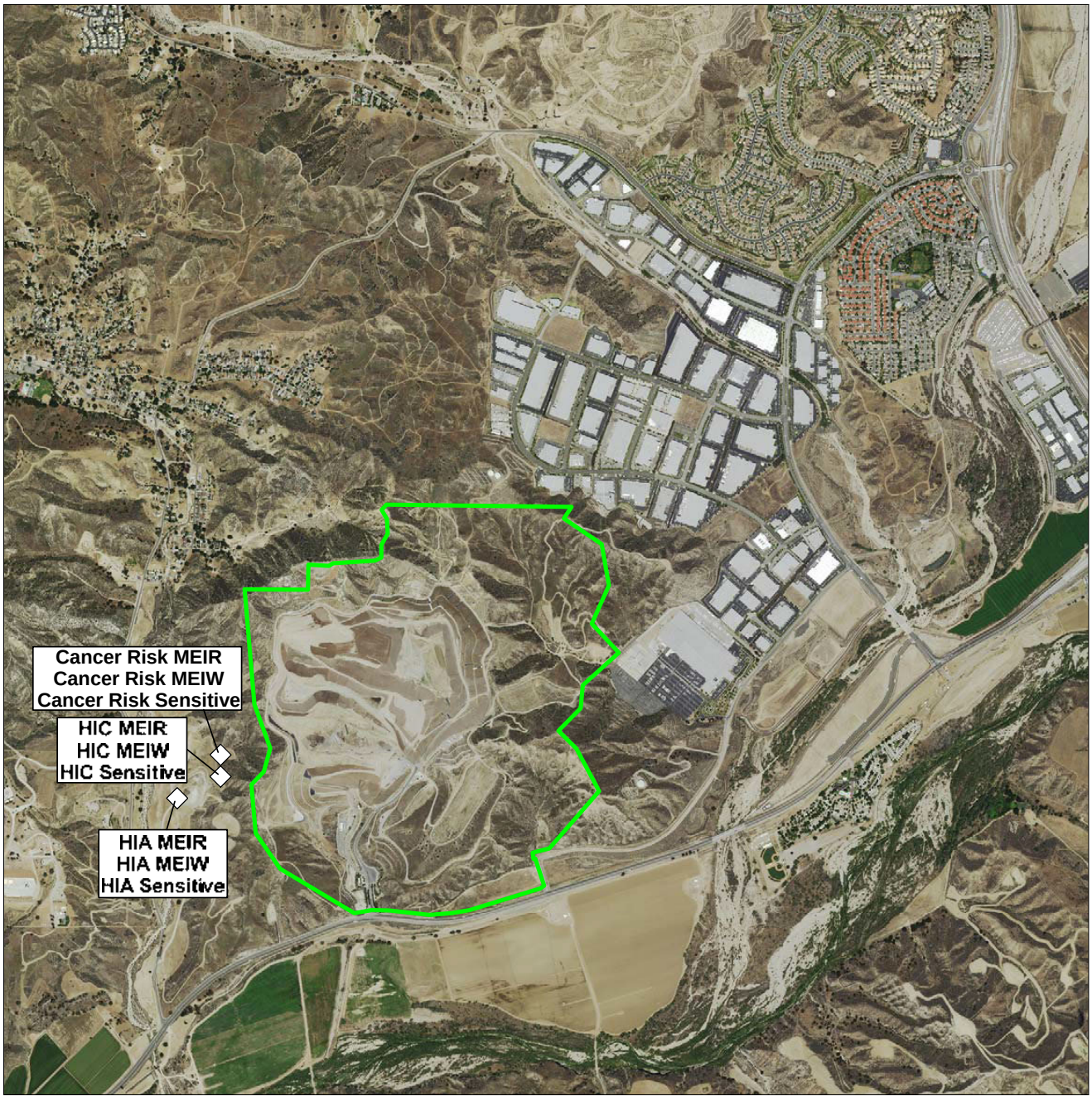
## 11.9.3 Cumulative Odor Impacts

The cumulative impact analysis for odor considers the potential odor impacts of the Proposed Project on nearby but not yet existing projects identified in Chapter 3.0, General Setting and Resource Area Analysis of the Original Draft EIR. Most notable on this list, based on proximity to the Proposed Project, are the Newhall Ranch Landmark Village and Homestead developments located south and west of the Proposed Project. The nearest future proposed residential development to CCL is Landmark Village. Based on the conceptual site plan for Landmark Village, the closest proposed residential dwelling is located approximately 1,000 feet from the proposed landfill waste footprint, on the other side of SR-126.




MEIR: residential maximally exposed individual
MEIW: workplace maximally exposed individual
HIC: chronic hazard index
HIA: acute hazard index

**Figure 11.6.**
**Maximum Cumulative Health Impact Locations**
**2003 OEHHA Guidance**
*Chiquita Canyon Landfill*
*Master Plan Revision*




MEIR: residential maximally exposed individual
MEIW: workplace maximally exposed individual
HIC: chronic hazard index
HIA: acute hazard index

**Figure 11.7.**
**Maximum Cumulative Health Impact Locations**
**2015 OEHHA Guidance**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Lower canyon walls and the CCL site entrance separate the waste footprint at CCL from the proposed Landmark Village and Homestead development to the south, while a moderately high canyon wall separates CCL from future developments to the west.

The wind roses based on Santa Clarita metrological data indicate the prevailing wind near the Proposed Project site blows from southeast to northwest. The wind roses based on CCL local wind data indicate the prevailing wind at the Proposed Project site blows from W to E. Neither wind rose shows prevailing winds from the north or east, indicating a very low likelihood of either Landmark Village or Homestead being downwind of CCL.

Management strategies to limit Proposed Project impacts associated with landfill operation to less than significant levels would also limit cumulative impacts to less than significant. Potentially significant odor impacts associated with the composting facility would also be potentially significant for cumulative projects. Mitigation Measure AQ-4 for the composting facility would also reduce cumulative project impacts to less than significant levels.

### 11.9.4 Mitigation Measures Required for Cumulative Impacts

Impacts from the CCL project would be mitigated to the extent feasible through the implementation of Project Design Measures and mitigation measures. Emissions from passenger and commercial on-road vehicles associated with the nearby development projects would be reduced in the future based on improved efficiency, cleaner fuels, and vehicular control technology required by EPA and CARB. Off-road equipment used for construction of the nearby proposed projects would implement control measures to reduce criteria pollutant emissions, including fugitive dust, and TACs, as required by applicable regulations. Therefore, additional mitigation measures for cumulative impacts have not been identified at this time.

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CHAPTER 12

# Greenhouse Gas Emissions and Climate Change

## 12.1 Introduction

This chapter provides an evaluation of the contribution of the Chiquita Canyon Landfill (CCL) Master Plan Revision (Proposed Project) to greenhouse gas (GHG) emissions and global climate change.

This analysis acknowledges that the Proposed Project would accommodate the disposal of solid waste that will continue to be generated within the Los Angeles County region, with or without the Proposed Project. Additional net regional air emissions, including GHG emissions, will therefore occur from the transport and disposal of solid waste under any scenario. Furthermore, because the waste currently in place will continue to decompose, CCL will continue to emit GHG without the Proposed Project. Information presented includes a description of the existing conditions, including a quantitative analysis of existing baseline emissions, with an overview of the regulatory, climate change, GHG emissions, and operational setting of the Proposed Project. An explanation of the impact assessment methodology and a presentation of the potential impacts of the Proposed Project and mitigation measures are also provided.

### 12.1.1 Climate Change

Global climate change is expressed as changes in the average weather of the earth that are measured by temperature, wind patterns, precipitation, and storms over a long period of time [United Nations Intergovernmental Panel on Climate Change (IPCC), 2013]. Since the time that work began on this Environmental Impact Report (EIR), scientific understanding of the causes and effects of climate change, and consensus regarding the link between climate change and anthropogenic GHG emissions has increased tremendously.

The IPCC now states that the warming of the climate system is “unequivocal”, “…human influence on the climate system is clear…”, “…it is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century”, and “Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system.” (IPCC, 2013). The most recent United States National Climate Assessment explains that, “While scientists continue to refine projections of the future, observations unequivocally show that climate is changing and that the warming of the past 50 years is primarily due to human-induced emissions of heat-trapping gases”, and that “Global climate is projected to continue to change over this century and beyond, but there is still time to act to limit the amount of change and the extent of damaging impacts.” (United States Global Change Research Program, 2014). The United States Environmental Protection Agency (EPA) states that, “GHG pollution threatens the American public’s health and welfare by contributing to long-lasting changes in our climate that can have a range of negative effects on human health and the environment.” (EPA, 2014a)

### 12.1.2 Greenhouse Gases

Gases that trap heat in the atmosphere are often called GHGs. Common GHGs include carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), and certain fluorinated gases. Other gases such as water and ozone are also GHGs, although are of less importance because, for example, the atmospheric lifetime of

water vapor is very short as compared to $CO_2$, and as such human caused impacts to water vapor concentration are of minor consequence.

Different GHGs have varying climate change impacts. The most commonly accepted metric for the radiative forcing (heat trapping) impact of GHGs is the global warming potential (GWP), which is a ratio intended to quantify the mass of $CO_2$ that would produce the same impacts over 100 years as one unit mass of the GHG. Most current regulatory and voluntary reporting programs in the United States currently use GWP estimates from the IPCC Fourth Assessment Report (AR4), although some may still use older estimates from the IPCC Second Assessment Report (SAR), and updated estimates are provided in the IPCC Fifth Assessment Report (AR5). The California mandatory GHG reporting program uses SAR GWPs.

As an example, per IPCC SAR, the GWP of $CH_4$ is 21. By definition, the GWP of $CO_2$ is 1. $N_2O$ and the fluorinated gases have much higher GWPs.

Emissions of individual and total gases are reported as a carbon dioxide equivalent ($CO_2e$) in order to provide a metric for total climate change impact. For example, the emissions of 1 ton of $CH_4$ and 1 ton of $CO_2$ would total 22 tons of $CO_2e$ using SAR GWPs.

GHGs are emitted by both natural processes and human activities. Of the common GHGs, $CO_2$ and $CH_4$ are emitted in the greatest quantities from human activities. Emissions of $CO_2$ are largely byproducts of fossil fuel combustion or oxidation of fixed carbon due to land use changes. $CH_4$ emissions result from offgassing associated with agricultural practices, the decomposition of organic materials within landfills, fugitive emissions from oil & gas production, and other sources. Fluorinated gases, such as hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride ($SF_6$), are byproducts of certain industrial processes and can also result from fugitive releases of refrigerants and electrical insulators as well as other industrial uses of such gases.

GHGs in the atmosphere regulate the earth's temperature. Without the natural heat trapping effect of GHGs, the earth's surface would be about 34 degrees Celsius (°C) cooler (Climate Action Team [CAT], 2006). However, it is known that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of GHGs in the atmosphere beyond the level of naturally occurring concentrations.

The following paragraphs provide information on the primary GHGs in more detail.

**Carbon Dioxide.** The global carbon cycle is made up of large carbon flows and reservoirs. Billions of tons of carbon in the form of $CO_2$ are absorbed by oceans and living biomass (i.e., sinks) and are emitted to the atmosphere annually through natural processes (i.e., sources). Solid waste landfills are both sources and sinks of carbon. When in equilibrium, carbon fluxes among these various reservoirs are roughly balanced (EPA, 2013b). $CO_2$ was the first GHG demonstrated to be increasing in atmospheric concentration, with the first conclusive measurements being made in the last half of the 20th Century. As noted above, $CO_2$ has a GWP of one. Concentrations of $CO_2$ in the atmosphere have risen approximately 35 percent since the Industrial Revolution. According to the IPCC (2007), the global atmospheric concentration of $CO_2$ has increased from a pre-industrial value of approximately 280 parts per million by volume (ppmv) to 379 ppmv in 2005. By 2011, concentrations increased to 391 ppmv (IPCC, 2013).

**Methane.** $CH_4$ is an extremely effective absorber of radiation, though its atmospheric concentration is less than $CO_2$, and its lifetime in the atmosphere is brief (10 to 12 years) compared to some other GHGs. Based on a number of factors, scientific assessments of the climate impact of methane have increased with time. The IPCC SAR estimated the GWP of $CH_4$ as 21 and, as noted above, the IPCC AR4 estimates it at 25. The IPCC AR5 reports 100 year GWP of $CH_4$ and fossil $CH_4$ of 28 and 30, respectively, although few if any reporting organizations have adopted the higher estimates yet. Methane concentrations have increased by an estimated 150 percent since pre-industrial times (IPCC, 2013). Anthropogenic sources of

$CH_4$ include natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, stationary and mobile combustion, landfills, and certain industrial processes (EPA, 2013b).

**Nitrous Oxide.** Concentrations of $N_2O$ also began to rise at the beginning of the industrial revolution. $N_2O$ is produced by microbial processes in soil and water, including reactions that occur in fertilizers containing nitrogen, as well as a number of industrial processes and other sources. Concentrations of $N_2O$ are estimated to exceed pre-industrial levels by 20 percent (IPCC, 2013). The SAR and AR4 estimates of GWP for $N_2O$ are 310 and 298, respectively.

**Fluorinated Gases (HFCS, PFCs, and $SF_6$).** Fluorinated gases, such as HFCs, PFCs, and $SF_6$, are powerful GHGs that are emitted from a variety of industrial processes. Some fluorinated gases are used as substitutes for ozone-depleting substances such as chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC), and halons, which have been regulated since the mid-1980s because of their ozone-destroying potential and are being phased out under the *Montreal Protocol* and Clean Air Act (CAA) Amendments of 1990. Some are used for other industrial processes, and $SF_6$ is used in high voltage electrical equipment. Fluorinated gases are typically emitted in smaller quantities than $CO_2$, $CH_4$, and $N_2O$, have a much greater global warming effect per unit of mass. For example, SAR and AR4 estimates of the GWP for $SF_6$ are 23,900 and 22,800, respectively.

### 12.1.3 Global, National, and California Greenhouse Gas Emissions

From 1750 to 2011, global $CO_2$ emissions to the atmosphere from fossil fuel combustion and cement production totaled 365 gigatonnes of carbon (GtC) (1,340,000 million metric tons [MMT] $CO_2$), while deforestation and other land use change are estimated to have released 180 GtC (661,000 MMT $CO_2$). This results in cumulative anthropogenic emissions of 545 GtC (2,000,000 MMT $CO_2$) (IPCC, 2013).

Total United States GHG emissions in 2014 were estimated to be 6,870 MMT $CO_2e$ (EPA, 2016b). Overall, total United States GHG emissions have risen by 7.4 percent from 1990 to 2014, and GHG emissions increased from 2013 to 2014 by 1.0 percent (70 MMT $CO_2e$). The increase from 2013 to 2014 was driven primarily by increased fuel for space heat driven by the relatively cool winter, increase in vehicle miles traveled, and increased industrial production across multiple sectors. Since 1990, United States GHG emissions have increased at an average annual rate of 0.3 percent (EPA, 2016b). The primary GHG emitted by human activities in the United States was $CO_2$, representing approximately 82 percent of total GHG emissions in terms of $CO_2e$ (EPA, 2016b). The largest source of $CO_2$, and of overall GHG emissions, was fossil fuel combustion. $CH_4$ emissions, which have declined from 1990 levels, resulted primarily from enteric fermentation associated with domestic livestock, decomposition of wastes in landfills, and natural gas systems. Agricultural soil management was the major source of $N_2O$ emissions. Landfill $CH_4$ emissions were 2.2 percent of the total GHG emissions in the United States.

California is a substantial contributor of global GHGs –the second largest contributor in the United States and the 14th largest contributor in the world in 2007 (California Air Resources Board [CARB], 2011). In 2014, human activities in California released 441.5 MMT $CO_2e$, which equaled approximately 6 percent of the United States total. The primary source of GHGs in California is transportation, contributing 42 percent of the state's total GHG emissions. Industrial emissions were the second largest source, contributing 23 percent of the state's GHG emissions (CARB, 2016). 84 percent of California's 2013 GHG emissions (in terms of $CO_2e$) were $CO_2$, 9 percent were $CH_4$, 3 percent were $N_2O$, and 4 percent were high GWP gases. Landfill emissions were 1.9 percent of total California anthropogenic emissions (CARB, 2016).

### 12.1.4 Effects of Global Climate Change

Global climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures, precipitation patterns, and sea level rise. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate

changes during the 21st Century than were observed during the 20th Century. The global mean surface temperature change for the period 2016–2035 relative to 1986–2005 will likely be in the range of 0.3°C to 0.7°C (IPCC, 2013). According to CARB, California is facing a range of climate change impacts including increases in extreme heat, wildfires, drought, extreme storms, coastal flooding, and erosion, and reductions in springtime snowpack in the Sierra Nevada mountains (CARB, 2014).

The connection between climate change and anthropogenic GHGs, and the types of impacts that will result, are known with a high level of certainty. However, our ability to predict and quantify the new extremes of climate-related variables, and procedures for "downscale" modeling to estimate localized impacts, are still evolving. Thus the following discussion reviews some of the possible types and ranges of impacts.

**Air Quality.** Higher temperatures are conducive to some types of air pollution formation, and could potentially worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. However studies prepared under the direction of CARB estimated that climate change may cause ozone pollution in California to exceed federal standards by 6 to 30 additional days per year, and that ozone concentrations in Southern California could increase by 9 to 19 parts per billion by 2050 (CARB, 2014). Increased particulate emissions from wildfire and dusty conditions are also possible.

**Water Supply.** Uncertainty also remains with respect to the overall impact of global climate change on future water supplies in California. However California Department of Water Resources (DWR) stated that, "Climate change is having a profound impact on California water resources, as evidenced by changes in snowpack, sea level, and river flows. These changes are expected to continue in the future and more of our precipitation will likely fall as rain instead of snow. This potential change in weather patterns will exacerbate flood risks and add additional challenges for water supply reliability." (DWR, 2015)

In discussing uncertainties regarding the magnitude of climate change impacts on California water supplies, DWR cites the following known changes:

- "Snowpack. California's snowpack, a major part of annual water storage, is decreasing with increasing winter temperatures.
- "Hydrologic Pattern. Warmer temperatures and decreasing snowpack cause more winter runoff and less spring/summer runoff.
- "Rainfall Intensity. Regional precipitation changes remain difficult to determine, but larger precipitation events could be expected with warmer temperatures in some regions.
- "Sea Level Rise. Sea level rise is increasing the threat of coastal flooding, salt water intrusion, and even disruption of water exports from the Sacramento-San Joaquin Delta should levees fail on key islands and tracts.
- "Water Demand. Plant evapotranspiration increases with increased temperature.
- "Aquatic Life. Higher water temperatures are expected to have a negative effect on some species and may benefit species that compete with native species." (DWR, 2013)

**Hydrology.** Climate change could potentially affect the amount of snowfall, rainfall, and snowpack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide, and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes: expansion of sea water as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion.

**Agriculture.** California has a $37 billion agricultural industry and is the nation's leading producer of nearly 80 different crop and livestock commodities. The California Natural Resource Agency noted that "Climate change alters both average and extreme temperatures and precipitation patterns, which in turn influence crop yields, pest and weed ranges and introduction, and the length of the growing season. Extreme events, such as heat waves, floods, and droughts, may be among the most challenging impacts of climate change for agriculture since they can lead to large losses in crop yields and livestock productivity. Since California plays a critical role in feeding not only state residents, but those of the United States and other countries, these large production declines and losses would translate to not only food shortages but financial and economic shifts that could disrupt local, regional, and national commodities systems." (California Natural Resources Agency, 2009)

Impacts detailed in the study for California agriculture include:

- Changing precipitation, temperatures, and pest and weed ranges
- Extreme events that cause large losses of crops and stress on livestock
- Decreased yield of some crops
- Increased yield of other crops due to longer growing season and increased $CO_2$ concentrations, balanced by the potential spread of invasive species and weeds
- Low-land flooding caused by sea level rise and faster winter run-off, and salinity impacts of sea level rise

# 12.2 Regulatory Setting

The federal and state governments have been empowered by legislation and regulation including the federal CAA to regulate the emission of airborne pollutants. With a series of actions including the *Massachusetts vs. EPA* decision in the Supreme Court, the Endangerment Determination, Light Duty Vehicle Rule, and Tailoring Rule, GHGs are now subject to regulation under the federal CAA. Assembly Bill (AB) 32 also established the requirement to manage GHGs in California and has resulted in a series of regulatory programs. EPA is the federal agency designated to administer air quality regulation, while CARB is the state equivalent in California. Local control in air quality management is provided by CARB through county-level or regional (multi-county) air quality management districts (AQMD) and air pollution control districts (APCD). CARB establishes air quality standards and is responsible for control of mobile emission sources, while the local AQMDs and APCDs are responsible for enforcing standards and regulating stationary sources. CARB has established 14 air basins statewide. The Proposed Project is located within the South Coast Air Quality Management District (SCAQMD).

## 12.2.1 Federal Regulations and Standards

### 12.2.1.1 Clean Air Act

On April 2, 2007, in *Massachusetts v. EPA* (2007) 549 U.S. 497, the Supreme Court found that GHGs meet the definition of pollutants under the CAA. The court thus held that EPA must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution that could reasonably be anticipated to endanger public health or welfare or whether the science is too uncertain to make a reasoned decision. In making these decisions, EPA was required to follow the language of Section 202(a) of the CAA. The Supreme Court decision resulted from a petition for rulemaking under Section 202(a) filed by more than one dozen environmental, renewable energy, and other organizations.

On April 17, 2009, the EPA Administrator signed Proposed Endangerment and Cause or Contribute Findings for GHGs under Section 202(a) of the CAA. EPA held a 60-day public comment period, and received more than 380,000 public comments. EPA reviewed, considered, and incorporated public comments and issued final findings. EPA found that six GHGs taken in combination endanger both the

public health and the public welfare of current and future generations. EPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse effect and, under Section 202(a) of the CAA, result in air pollution that endangers public health and welfare.

#### 12.2.1.2 Climate Change Regulations

The following regulations adopted to date by EPA to address both global climate change and GHG emissions include the following.

***40 Code of Federal Regulations (CFR) Part 52: Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule.*** GHG emissions are covered by the Prevention of Significant Deterioration (PSD) and Title V operating permit programs as of January 2, 2011. These permitting programs are required under the CAA. However, according to EPA the thresholds established in the CAA for determining applicability of the PSD and Title V programs (100 and 250 tons per year, respectively) would have created an "overwhelming burden" for regulation of GHGs. Therefore, a "common sense" approach to permitting GHG emissions under PSD and Title V was established under EPA's GHG Tailoring Rule, issued in May 2010.

The GHG Tailoring Rule set initial emission thresholds for PSD and Title V permitting based on $CO_2e$ emissions. Under Step 1 of the rule, new facilities with GHG emissions of at least 75,000 short tons per year (tpy) $CO_2e$ and existing facilities making changes that would increase GHG emissions by at least 75,000 tpy $CO_2e$, and which are subject to PSD based on emissions of other air pollutants, are required to obtain PSD permits for and apply "Best Available Control Technology" for GHGs. Under Step 2 of the rule, in addition to the criteria for Step 1, new and existing sources with GHG emissions or GHG emission increase above 100,000 short tpy[1] $CO_2e$ were required to apply PSD permitting for both GHGs and conventional air pollutants regardless of whether conventional air pollutants would otherwise trigger the rule. Under Step 1, all sources subject to Title V for criteria air pollutants must include any applicable GHG regulations in those permits, and under Step 2, any source with GHG emissions above 100,000 tpy $CO_2e$ were required to obtain Title V permits for conventional air pollutants and GHGs regardless of conventional air pollutant emission rates.

Step 3 of the GHG Tailoring Rule, issued on June 29, 2012, continued the focus of GHG permitting on the largest emitters by retaining the permitting thresholds that were established in Steps 1 and 2. In addition, Step 3 improved the usefulness of plant-wide applicability limitations (PAL) by allowing GHG PALs to be established on $CO_2e$ emissions, in addition to the already available PALs for mass emissions, and to use the $CO_2e$-based applicability thresholds for GHGs provided in the "subject to regulation" definition in setting the PAL on a $CO_2e$ basis. Step 3 also revised the PAL regulations to allow a source that emits or has the potential to emit at least 100,000 tpy of $CO_2e$, but that has minor source emissions of all other regulated New Source Review pollutants, to apply for a GHG PAL while still maintaining its minor source status (EPA, 2013a).

In June of 2014, the US Supreme Court issued a decision that EPA may not treat GHGs as an air pollutant for determination of whether a facility is a "major source" under the PSD and Title V permitting programs. This vacates Step 2 of the Tailoring Rule. Based on anticipated increases in criteria air pollutant emissions, the Proposed Project will not be a PSD major modification, and as such no federal requirements exist for permitting or control technology analyses for GHGs.

[1] A short ton is a commonly used term for a normal U.S. ton (2,000 lbs) as opposed to a long ton (2,240 lbs) or a metric ton (1,000 kg or 2,204 lbs). Almost all GHG reporting programs domestically or internationally are based on metric tons, as are the emission estimates presented in this document. However because the CAA is based on short tons, the EPA GHG permitting requirements are also based on short tons.

***40 CFR Part 98: Mandatory Reporting of Greenhouse Gases Rule.*** Via the Fiscal Year 2008 Consolidated Appropriations Act (H.R. 2764, Public Law 110-161), EPA issued the Greenhouse Gas Mandatory Reporting Rule (MRR) (74 *Federal Register* [FR] 56260) on October 30, 2009. The MRR applies to fossil fuel and industrial gas suppliers, direct GHG emitters, and manufacturers of heavy duty and off-road vehicles and engines. The MRR requires that sources above certain threshold levels monitor and report GHG emissions, but does not require control or mitigation of GHG emissions. The Proposed Project will be subject to the MRR.

***40 CFR Part 60: Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills*.** In July 2016, EPA announced final updates to its New Source Performance Standards to reduce emissions of methane-rich landfill gas (LFG) from new, modified and reconstructed municipal solid waste (MSW) landfills. In a separate action, EPA also issued guidelines for reducing emissions from existing MSW landfills. Both actions require affected landfills to install and operate a gas collection control system within 30 months after LFG emissions reach a new, lower threshold of 34 metric tons of non-methane organic compounds or more per year (written as megagrams in the rule). This threshold previously was 50 metric tons per year in both the New Source Performance Standards and Emission Guidelines. Landfill owners/operators may control gas by combusting it in an enclosed combustion device (such as a boiler, engine or turbine) for energy generation, by using a treatment system that processes the collected gas for sale or beneficial use, or by flaring it. The New Source Performance Standards and Emission Guidelines also include requirements for monitoring of surface methane emissions and clarifications about the uses of treated LFG. The final rules also include criteria for capping or removing an LFG collection-and-control system from all or a portion of a landfill that is producing low amounts of LFG.

## 12.2.2 California Executive Orders, Regulations, and Standards

**Senate Bill 1771.** Senate Bill (SB) 1771 (Sher), chaptered in September of 2000, required the Secretary of the Resources Agency to establish a nonprofit public benefit corporation, to be known as the California Climate Action Registry (CCAR) for the purpose of administering a voluntary GHG emissions registry to record and register voluntary GHG reductions that have been achieved since 1990. The bill required the Energy Commission to qualify third-party organizations to provide assistance for purposes of monitoring and reducing GHG emissions. In addition, the Energy Commission was required to develop metrics for use by the Registry and to update the State's inventory of GHG emissions by January 1, 2002. The law also required the adoption of standards to verify emissions reductions and requires the establishment of GHG emissions reductions goals along with efficiency improvement plans.

**GHG Emissions Registries.** As noted above, the CCAR provided leadership on climate change by developing and promoting credible, accurate, and consistent GHG reporting standards and tools for organizations to measure, monitor and reduce their GHG emissions consistently across industry sectors and geographical borders, and subject to third party verification. (www.climateregistry.org)

Waste Connections, Inc. voluntarily joined the CCAR in 2006, reported emissions from 2006 through 2009, and was awarded the status of Climate Action Leader by the registry from 2006 to 2009. After supporting the successful launch of The Climate Registry (TCR), which provides a nation-wide GHG reporting platform, CCAR ceased operations and officially closed in December 2010. From 2010 to present, Waste Connections has reported emissions to TCR. TCR GHG emission reports are available at www.cris4.org.

**Executive Order S-3-05.** Governor Schwarzenegger issued Executive Order S-3-05 in 2005, which established statewide GHG emissions reduction targets. Executive Order S-3-05 provides that GHG emissions shall be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent of 1990 levels by 2050 (CAT, 2006).

In response to Executive Order S-3-05, the CalEPA created the Climate Action Team, which, in March 2006, published the *Climate Action Team Report* (the "2006 CAT Report"). The 2006 CAT Report identifies a recommended list of strategies that the state could pursue to reduce GHG emissions. These strategies could be implemented by various state agencies, within their existing authority, to ensure that the governor's targets are met. The strategies include, but are not limited to: reduction of passenger and light duty truck emissions, reduction of idling times for diesel trucks, overhaul of shipping technology and infrastructure, increased use of alternative fuels, increased recycling, and increased landfill $CH_4$ capture. CAT has published various reports and strategies for GHG reduction plans, including for the waste management sector, from 2007 through 2015.

**Assembly Bill 32.** AB 32, the "California Global Warming Solutions Act of 2006," was signed into law in the fall of 2006. AB 32 established the goal of reducing GHG emissions estimated 1990 emission levels by 2020, and directed CARB to begin developing discrete early actions to reduce GHG emissions while also preparing a Scoping Plan to identify how to reach the 2020 emissions cap. Major milestones of AB 32 are outlined below:

- By January 1, 2009, CARB adopted the 2008 Scoping Plan indicating how emission reductions would be achieved from significant sources of GHG via regulations, market mechanisms (most notably, the Cap-and-Trade program), and other actions.
- During 2009, CARB staff drafted rule language to implement its plan and held a series of public workshops on each measure (including market mechanisms).
- On January 1, 2010, early action measures took effect.
- During 2010, CARB conducted a series of rulemakings to adopt GHG regulations, including rules governing market mechanisms.
- In January 2011, CARB completed major rulemakings for reducing GHG emissions, including market mechanisms.
- In January 2012, GHG rules and market mechanisms were adopted by CARB and became legally enforceable.
- On November 14, 2012, the first auction of GHG allowances was held.
- On January 1, 2013, enforceable compliance obligations under the Cap-and-Trade program began for Phase 1 covered sectors.
- In January 2015, cap-and-trade obligations expanded to include fuel distributors.

**Executive Order B-30-15.** On April 29, 2015, Governor Brown issued Executive Order B-30-15, which established a new interim statewide GHG emission reduction target to reduce emissions to 40 percent below 1990 levels by 2030. The purpose of the order is to ensure that the state meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050.

**Senate Bill 32.** Signed in September 2016, SB 32 amends the Global Warming Solutions Act of 2006 to include this new 2030 target for GHG emissions reductions. Under Senate Bill 32, CARB is required to ensure that GHG emissions are reduced to 40 percent below the 1990 level by 2030.

**Senate Bill 1383**. SB 1383, signed by the Governor on September 19, 2016, requires CARB, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The new law also requires reductions of organic waste at landfills to 50 percent below 2014 standards by 2020, and 75 percent below 2014 by 2025. These latter targets are aggregate statewide and need not be met by each jurisdiction. The regulations to achieve these latter targets shall take effect on or after January 1, 2022, and may require local jurisdictions to impose requirements on generators, shall include

requirements intended to meet the goal that not less than 20 percent of edible food that is currently disposed of is recovered for human consumption by 2025, shall not establish a numeric organic waste disposal limit for individual landfills, and may include different levels of requirements and phased timelines for local jurisdictions and penalties for noncompliance.

**Assembly Bill 197.** Assembly Bill 197, signed in September 2016, expands the membership of CARB and requires that information on its inventory of GHG emissions be provided online. It also requires CARB, when updating rules and regulations to achieve GHG emissions reductions beyond the statewide GHG emissions limit, to follow specified requirements, consider the social costs of the emissions of GHGs, and prioritize specified emission reduction rules and regulations in an effort to protect impacted and disadvantaged communities.

*CARB Scoping Plan*. The 2008 Scoping Plan included comprehensive GHG emissions reduction targets for multiple economic sectors to achieve a 169 MMT $CO_2$e reduction by 2020 as compared to a business as usual (BAU) forecast of 2020 emissions absent the actions described in the plan. The recommended GHG emission reduction measures targeted at the recycling and waste sector (landfill methane capture) accounted for 1 MMT $CO_2$e, or 0.6 percent of the statewide 2020 target. Other recommended measures targeted at the recycling and waste sector that were not counted toward the 2020 target were estimated to provide the potential for an additional reduction of 9 MMT $CO_2$e.

Since release of the Scoping Plan in 2008, CARB updated the statewide GHG emissions inventory in 2014 to reflect GHG emissions in light of the economic downturn, include measures not previously considered in the 2008 Scoping Plan baseline inventory, and incorporate the latest scientific understanding of GHG impacts. The updated forecast predicts BAU emissions to be 509MMT $CO_2$e in 2020, and estimates that 78 MMT $CO_2$e of reductions (or 15.3 percent of the BAU forecast) are necessary to achieve the statewide emissions goals by 2020. CARB is currently moving forward with a second update to the Scoping Plan to reflect the 2030 emission reduction target, but the revised plan is not yet available.

In the Scoping Plan Resolution 11-32, CARB directed its staff to work with CalRecycle and other stakeholders to characterize GHG emission reduction opportunities for handling solid waste, including recycling, reuse, remanufacturing of recovered materials, composting and anaerobic/aerobic digestion, biomass conversion, waste thermal processes and landfilling. These reduction opportunities will be included in plans for achieving mid and long term reduction targets, although benefits of specific opportunities have not yet been quantified.

*Cap-and-Trade*. The Cap-and-Trade program is an element of AB 32 that covers major sources of GHG emissions in California, including power plants, industrial facilities, and distribution of fuels. The Cap-and-Trade Regulation (17 *California Code of Regulations* [CCR] 95801-96022) includes an enforceable GHG cap that declines over time. Each quarter, CARB auctions allowances, which are tradable permits, equal to the emission allowed under the cap. The Proposed Project would not be subject to the current Cap-and-Trade regulation as emissions from biomethane and biogas produced by landfills do not have a compliance obligation (17 CCR 95852.2[a][8][B]).

By Cap-and-Trade Resolution 12-33, CARB directed its staff to propose a comprehensive approach for the most appropriate treatment of the waste management sector under the Cap-and-Trade program based upon the analysis of emission reduction opportunities. In response to this directive, CARB and CalRecycle established a joint workgroup to determine the best use of recycling alternatives, examining ways to increase the use of waste diversion alternatives, obtaining funds and incentives for building the infrastructure, and evaluating the need for additional research to achieve GHG reductions and meet waste management goals.

*Industrial Facilities*. As part of AB 32, GHG emissions reporting is required for industrial facilities; suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and $CO_2$; operators of petroleum and natural gas systems; and electricity retail providers and marketers.

The California GHG MRR was originally approved in 2007 and revised in 2010, 2012, and 2013. The current regulation became effective January 1, 2014. The Proposed Project is subject to the California GHG mandatory reporting rule.

*Landfill Methane Control Measure*. The Landfill Methane Control Measure regulation, a discrete early action GHG reduction measure as described in AB 32, became effective in June 2010. The regulation is designed to reduce methane emissions from Municipal Solid Waste (MSW) landfills and differs from federal regulations and local air district rules in that the focus is generally on methane rather than on non-methane organic compounds (NMOC), it applies to smaller landfills (in addition to larger landfills), and has more stringent requirements for methane collection and control, component leak testing, and surface emissions monitoring.

The regulations for MSW landfills require the installation and proper operation of an LFG collection and control system if the landfill is active, inactive, or closed and has a minimum of 450,000 tons of waste-in-place, if it received waste after January 1, 1977, if the LFG is currently uncontrolled, and the LFG heat input capacity is greater than 3.0 MMBtu/hr. If a landfill can demonstrate that the LFG heat input capacity is less than 3.0 MMBtu/hr then it may be exempt. CARB has a simple modeling tool on their website for calculating the heat capacity (http://www.arb.ca.gov/cc/landfills/landfills.htm).

However, landfill owners or operators with existing gas collection and control systems are not required to submit plans or install new collection and control systems. If required, a control system must be in place within 18 months of approval of the design and it must achieve 99 percent reduction of methane for most control devices (i.e. flares). The 99 percent destruction efficiency does not apply to lean burn internal combustion engines. They must reduce the outlet methane concentration to less than 3,000 ppmv.

Ongoing monitoring requirements exist to ensure the collection and control system is maintained and operated in a manner to minimize methane emissions. Surface emission monitoring must be performed quarterly to make sure methane emissions are adequately controlled. Instantaneous and integrated (averaged) surface methane concentrations must not exceed 500 ppmv and 25 ppmv, respectively. Under certain conditions, surface monitoring may be performed on an annual basis. In addition, the combustion temperature of the enclosed combustion device (i.e., flare) must be equipped with a continuous monitor.

*Ongoing CARB Actions.* AB32 also established a process for identifying GHG reduction opportunities for various sectors including waste management. In 2014, CARB and CalRecycle developed a draft framework for the waste management sector, which was incorporated into the proposed first update to the Scoping Plan. Proposed goals are net-zero GHG emissions (including avoided GHG emissions from other sources) from the entire waste management sector by 2035, and 25 percent reduction in direct GHG emissions by 2050 as compared to 2035 emissions.

According to the framework, the waste management sector's continued contribution to meeting 2050 goals depends on the increased use of innovative technologies. To achieve net-zero emissions, even greater diversion of organics and other recyclable commodities from landfills must be realized and further expansion and enhancement of the alternative non-disposal pathways must be developed. In addition, greater emphasis will need to be placed on reducing the volume of waste generated, recycling/reusing products at end-of-life, and remanufacturing these materials into beneficial products. To achieve net-zero, the direct GHG emissions from the waste sector would have to be fully offset by avoided GHG emissions.

The current waste management infrastructure will need to be expanded to accommodate the increases in recycling and remanufacturing of waste material that would occur in order to meet the GHG and waste reduction goals. This would mean more facilities and technologies that can use organics from the waste stream as well as more remanufacturing facilities for the various types of recycled material.

This may also mean more sorting of material before disposal at the consumer level and may lead to more job opportunities in the waste management field. The framework provides that facility operators may consider co-locating new waste treatment facilities at existing waste sites to minimize permitting issues and environmental impacts.

Implementation of best management practices (BMP) for landfills may provide even greater reductions of GHG emissions from landfills. Such actions may include: specific requirements for gas collection system design, construction, timing, and operation; landfill unit and cell design and construction; waste placement methods; daily and immediate cover materials and practices; use of compost or other biologically active materials in cover soils; and organic materials management. CARB is considering the phasing out of organics in landfills and including landfills in the Cap-and-Trade regulation.

**Senate Bill 97.** SB 97, signed in August 2007, acknowledged that climate change is an important environmental issue that requires analysis under the California Environmental Quality Act (CEQA). This bill directed the California Office of Planning and Research (OPR) to prepare, develop, and transmit to the Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions by July 1, 2009.

In response to SB 97, OPR submitted its recommended amendments to the *CEQA Guidelines* for addressing GHG emissions to the Secretary for Natural Resources on April 13, 2009. Those recommended amendments were developed to provide guidance to public agencies regarding the analysis and mitigation of GHG emissions and the effects of GHG emissions in draft CEQA documents. The amendments were adopted by the Natural Resources Agency on December 30, 2009, and became effective on March 18, 2010.

This Partially Recirculated Draft EIR section therefore contains GHG calculations for the Proposed Project and an analysis of the potentially significant adverse environmental effects of the Proposed Project to climate change on both a project specific and cumulative basis. Specific aspects of the Proposed Project are addressed below.

**CEQA Requirements.** The amendments to the *CEQA Guidelines* for addressing GHG emissions were adopted on December 30, 2009, and became effective on March 18, 2010. The amended guidelines do not establish quantitative thresholds but instead provide qualitative thresholds for comparison. Similarly, the California Air Pollution Control Officers Association (CAPCOA) issued a white paper, titled *CEQA and Climate Change*, to assess GHG emissions in January 2008. CAPCOA has not made any recommendations for use of any specific methodology in its white paper (CAPCOA, 2008). CAPCOA later released a report titled *Quantifying GHG Mitigation Measures*, to provide a common platform of information and tools to support local governments in August 2010. This report does not provide policy guidance or advocate any policy position related to GHG emission reduction (CAPCOA, 2010).

### 12.2.3 Local Regulations and Standards

**County of Los Angeles Community Climate Action Plan.** The County of Los Angeles adopted a Community Climate Action Plan (CCAP) on October 6, 2015 as part of the Los Angeles County General Plan 2035**.**

To reduce the impacts of climate change, the County has set a target to reduce GHG emissions from community activities in the unincorporated areas of Los Angeles County by at least 11 percent below 2010 levels by 2020, which is consistent with the recommendations in the AB 32 Scoping Plan for municipalities to support the overall AB 32 reduction targets. According to the CCAP, waste generation accounts for 535,148 metric tons of $CO_2e$ (MT $CO_2e$), or 7 percent, of 2010 GHG emissions in unincorporated Los Angeles County. The County accounted for the exiting methane capture system at CCL in preparation of the CCAP.

The CCAP describes the County's plan for achieving this goal, including specific strategy areas for each of the major emissions sectors. The CCAP includes 26 local actions which are intended to complement and supplement the statewide actions; those which could be interpreted as potentially applicable to CCL are detailed below:

- **BE-1: Green Building Development.** Encourage new development to voluntarily exceed the requirements of Title 24, California's Building Code, that are applicable at the time new development is approved. Promote and incentivize at least Tier 1 voluntary standards within CALGREEN. Implementation of this strategy is anticipated to result in a 2020 GHG emissions reduction of 726 MT $CO_2e$.
- **BE-2: Energy Efficiency Programs.** Promote efficiency retrofits of existing buildings. Implementation of this strategy for at least 20 percent of existing commercial buildings over 50,000 square feet and at least 5 percent of existing residences is anticipated to result in a 2020 GHG emissions reduction of 46,298 MT $CO_2e$. The CCAP lists efficiency retrofits at landfills as an Additional Action included in the CCAP, but the GHG reduction value was not quantified.
- **BE-3: Solar Installations.** Encourage existing and new development to voluntarily install solar photovoltaic systems, where economically and technically appropriate. Implementation of this strategy is anticipated to result in a 2020 GHG emissions reduction of 92,944 MT $CO_2e$ (assuming standard photovoltaic systems are used). Additional reduction may be possible through use of alternative technologies such as solar thermal.
- **BE-4: Alternative Renewable Energy Programs.** Promote development of alternative renewable energies, such as wind, geothermal, and other forms of alternative renewable energy. Implementation of this strategy is listed as resulting in a "medium" 2020 GHG emissions reduction. The reduction is not quantified.
- **BE-7: Landfill Biogas.** Encourage renewable biogas projects at regional landfills. Partner with owners and operators of landfills with at least 250,000 tons of waste-in-place to identify incentives to capture and clean LFG to beneficially use the biogas to generate electricity, produce biofuels, or otherwise offset natural gas or other fossil fuels. The CCAP lists increased support for renewable biogas projects as an Additional Action included in the CCAP, but for which the GHG reduction value was not quantified. Implementation of this strategy is listed as resulting in a "medium" 2020 GHG emissions reduction.
- **LUT-4: Travel Demand Management.** Encourage employer-sponsored programs to reduce vehicle use, such as vanpools and shuttles. Implementation of this strategy is anticipated to result in a 2020 GHG emissions reduction of 9,416 MT $CO_2e$.
- **LUT-5: Car-Sharing Program.** Promote provision of on-demand access to a shared vehicle fleet. Implementation of this strategy is anticipated to result in a 2020 GHG emissions reduction of 2,223 MT $CO_2e$.
- **LUT-9: Idling Reduction Goal.** Limit idling time for heavy-duty construction equipment to 3 minutes, as feasible with manufacturer's specifications. Implementation of this strategy is anticipated to result in a 2020 GHG emissions reduction of 360 MT $CO_2e$.
- **LUT-12: Electrify Construction and Landscaping Equipment.** Utilize electric equipment wherever feasible for construction projects. Reduce the use of gas-powered landscaping equipment. Implementation of this strategy is listed as resulting in a "low" 2020 GHG emissions reduction. The reduction is not quantified.
- **WAW-1: Per Capita Water Use Reduction Goal.** Reduce per capita water consumption, consistent with Senate Bill X7-7, to achieve a statewide goal of a 20 percent per capita water use reduction by 2020. Strategies range from water efficiency retrofits to "smart gardening" campaigns to reduce

outdoor water use. Implementation of this strategy is anticipated to result in a 2020 GHG emissions reduction of 101,651 MT $CO_2$e.

- **WAW-2: Recycled Water, Water Supply Improvement Programs, and Stormwater Runoff.** Encourage use of recycled and better management of stormwater to protect local groundwater supplies. Promote use of wastewater and gray water to be used for agricultural, industrial, and irrigation purposes. Manage stormwater, reduce potential treatment, and protect local groundwater supplies. Implementation of this strategy is anticipated to result in a 2020 GHG emissions reduction of 23 MT $CO_2$e.
- **SW-1: Waste Diversion Goal.** County implementation of a number of local recycling and composting initiatives in conjunction with waste service providers. Increased outreach and education are important tools to help optimize participation in recycling and diversion programs. The CCAP finds that the strategies identified under SW-1 will enable the County to achieve its waste reduction goal and support statewide efforts to reduce landfilled waste under Assembly Bill 341, which sets a statewide goal of 75 percent from source reduction, recycling and composting. Implementation of this strategy is anticipated to result in a 2020 GHG emissions reduction of 12,212 MT $CO_2$e.
- **LC-2: Create New Vegetated Open Space.** Promote land restoration and re-vegetation to increase carbon sequestration. Implementation of this strategy is listed as resulting in a "low" 2020 GHG emissions reduction. The reduction is not quantified.

The CCAP summarizes, quantifies, and accounts for statewide actions and associated 2020 GHG emissions reductions strategies, including the Renewable Portfolio Standard, Title 24 Standards for Commercial and Residential Buildings, Pavley/Advanced Clean Cars and Low Carbon Fuel Standard for On-Road Transportation, Low Carbon Fuel Standard for Off-Road Equipment and Vehicles, and the California Cap-and-Trade Program.

Generally the CCAP places the responsibility for implementing the CCAP with County agencies. One major exception is implementation of BE-7, Landfill Biogas, which is primarily the responsibility of all operators of landfill facilities.

Project applicants can use the CCAP to comply with project-level CEQA review. The *CEQA Guidelines* specify at Section 15184.5 that project-level evaluation of GHG emissions can "tier off" a programmatic analysis of GHG emissions in a local climate action plan, provided that the analysis meets the following criteria:

- Quantifies GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;
- Establishes a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
- Identifies and analyzes the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
- Specifies measures or groups of measures, including performance standards that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
- Monitors the plan's process; and
- Adopts the GHG Reduction Strategy in a public process following environmental review.

The CCAP meets the criteria specified in *CEQA Guidelines* Section 15184.5. Accordingly, projects that incorporate applicable actions specified in the CCAP can "tier off" the Environmental Impact Report certified for the County General Plan and the CCAP to meet project-level CEQA evaluation requirements for GHG emissions.

Project-specific environmental documents that rely on the CCAP can qualitatively evaluate GHG impacts by identifying all applicable CCAP actions and describing how those actions have been incorporated into the project design and/or identified as mitigation. Projects that demonstrate consistency with applicable CCAP actions can be determined to have a less than significant cumulative impact on GHG emissions and climate change (notwithstanding substantial evidence that warrants a more detailed review of project-level emissions).

**City of Santa Clarita Climate Action Plan.** The City of Santa Clarita adopted a Climate Action Plan in August 2012. Section 4.2 of the Plan identifies GHG mitigation measures relating to solid waste diversion, energy usage, transportation, water, and vegetation. The solid waste diversion measures are aimed to limit the amount of waste sent to landfills, and are not applicable to the construction and operation of landfills. None of the mitigation measures presented in the City's Climate Action Plan are directly applicable to the Proposed Project; however they do include many of the interim performance standards developed by CARB.

**Southern California Association of Government's Regional Transportation Plan 2012-2035 Sustainable Communities Strategy.** SB 375 requires each metropolitan planning organization to prepare a Sustainable Communities Strategy (SCS) in their regional transportation plan. For the Southern California Association of Governments (SCAG) region, the Regional Transportation Plan 2012-2035/SCS was adopted in April 2012. It provides a strategy for increasing Southern California residents' options for mobility, workplace locations and home locations. SCAG analyzed the region's transportation system, the future growth of the region, and potential new sources of revenue. SCAG also performed outreach via meetings with stakeholder agencies, and planning sessions throughout the region to find out what Southern Californians want to see in their future. The SCS addresses the ability of transportation systems to provide improved access to jobs, education, and healthcare. The SCS emphasizes transit and active transportation and seeks to create jobs, ensure the region's economic competitiveness through strategic investments in goods movement, and improve environmental and health outcomes by 2035. In addition, the SCS seeks to preserve existing stable neighborhoods and open space.

With respect to landfills, the SCS states only that growth in the region could have impacts to public services and utilities such as additional demands on landfills and includes measures to encourage green building measures to reduce waste generation and reduce the amount of waste sent to landfills. The SCS does not regulate landfills or propose measures for landfills to reduce GHG emissions.

**SCAQMD Landfill Rule.** The purpose of SCAQMD Rule 1150.1 is to reduce emissions from MSW landfills. The rule incorporates and clarifies many federal landfill emission regulations (40 CFR) and California regulations (AB 32). The rule requires that a landfill gas collection and control system (GCCS) reduce $CH_4$ emissions by 99 percent and NMOC emissions by 98 percent or reduce outlet NMOC concentration from to less than 20 ppmv. It also includes requirements for flares and landfill gas collection systems, as well as sampling and monitoring requirements for landfills.

#### 12.2.3.1 SCAQMD Interim CEQA GHG Significance Threshold

In 2008, SCAQMD adopted interim guidelines for determining significance of GHG emissions under CEQA. The guidelines recommended a tiered approach for evaluation of actions including the following steps:

- Tier 1 – evaluating whether the project qualified for an exemption
- Tier 2 – for projects not exempt per Tier 1, determining whether the project is consistent with existing GHG reduction plans
- Tier 3 – for projects which cannot demonstrate consistency with existing GHG reduction plans, using a screening significance threshold of 10,000 MT $CO_2e$ per year of direct and indirect emissions for industrial projects

- Tier 4 – for large projects over the screening significance threshold, comparison of the project to pre-defined performance standards and GHG mitigation options for that project type
- Tier 5 – use of offsite mitigation measures and carbon offsets to reduce project impacts

Tier 4 performance standards have not been proposed by SCAQMD, and the interim guidelines were never finalized.

# 12.3 Regional Setting

CCL is located in the northwestern portion of unincorporated Los Angeles County. CCL is approximately 3 miles west of the intersection of Interstate 5 (I-5) and State Route 126 (SR-126). The site is located in Section 15, Township 4 North, Range 17 West, San Bernardino Baseline and Meridian. The site latitude and longitude are 34°25'N and 118°39'W, respectively. The landfill is located within a series of canyons that make up the current and future cells containing disposed waste. These canyons are oriented in a north-northeast to south-southwest manner and broaden to form the Santa Clarita River floodplain along the south. CCL is located within the planning area of the City of Santa Clarita, but is outside its city limits and sphere of influence. The landfill site is also located in the Santa Clarita Valley Area Plan (Area Plan) of the Los Angeles County General Plan and in the Castaic Area Community Standards District.

# 12.4 Greenhouse Gas Emissions Associated with CCL

CCL actively receives waste at a roughly 200-foot by 300-foot working face within the site. The operation of landfills and the associated emission rates are unique in comparison to land development projects because landfill operations require the regular use of heavy duty construction equipment and collection vehicles, long-term exposure of non-vegetated soil layers, constant movement of soil and refuse, and proper onsite combustion of LFG. A GCCS has been installed in both closed and active landfill areas, and a 9.2-megawatt landfill gas-to-energy (LFGTE) plant and flare stations have been added to combust the collected gases. GHG emissions from landfill operations are associated with fugitive LFG emissions, operation of the flare stations and LFGTE plant, construction vehicles and waste transfer trucks at refuse fill areas, construction of additional modules for waste receiving, and closure of modules that have reached capacity.

## 12.4.1 Landfill Gas Surface Emissions

As organic material decomposes in a landfill, it is initially digested by aerobic bacteria, which live in the presence of oxygen. Aerobic bacteria consume oxygen and produce biogenic $CO_2$, a GHG. Biogenic $CO_2$ emissions are defined as "$CO_2$ emissions related to the natural carbon cycle, as well as those resulting from the combustion, harvest, combustion, digestion, fermentation, decomposition, or processing of biologically based materials." (EPA, 2016a) While the "carbon neutrality" of biogenic emissions is a source of ongoing scientific study, which includes significant effort by EPA and the Science Advisory Board (SAB) that it has convened on the topic, it is generally accepted that biogenic emissions resulting from decomposition or combustion of waste materials do not contribute to global warming. For example, in the November 2014 memorandum "Addressing Biogenic Carbon Dioxide Emissions from Stationary Sources", EPA Acting Administrator for Air and Radiation Janet McCabe states that, "Information considered in preparing the second draft of the [Framework for Assessing Biogenic $CO_2$ Emissions from Stationary Sources], including the SAB peer review and stakeholder input, supports the finding that use of waste-derived feedstocks…are likely to have minimal or no net atmospheric contributions of biogenic $CO_2$ emissions, or even reduce such impacts, when compared with an alternate fate of disposal." (EPA, 2014b)

As oxygen in a landfill is depleted, however, anaerobic bacteria take over the task of decomposing the waste. Through a series of biochemical processes, anaerobic decomposition results in the production of

methane gas ($CH_4$), which as noted above has a GWP 25 times that of $CO_2$ according to the IPCC AR4 report.

LFG emissions are typically roughly half $CH_4$ and half $CO_2$, with a small fraction consisting of NMOCs. At CCL, the majority of $CH_4$ resulting from decomposition of waste is captured by the LFG collection system and subsequently combusted, converting the $CH_4$ to biogenic $CO_2$. The remaining $CH_4$ is released as fugitive emissions that pass through the landfill cover and thus are not captured by the collection system, and in much smaller amounts as point source emission of gas which is collected but is not fully combusted in the systems noted below.

The collected gas is monitored to be sure that the collection system is extracting LFG without drawing in ambient air. The collected gas is combusted in the LFGTE plant and flares, which both convert $CH_4$ into biogenic $CO_2$. Two LFG flares, each with a capacity of 4,000 standard cubic feet per minute (scfm) each, and two combustion turbines with capacity of approximately 1,774 scfm each for the LFGTE plant are currently in operation. The LFGTE plant includes a gas treatment system to clean the gas prior to combustion, and an additional 400 scfm flare to support the gas treatment system.

Given implementation of the proposed air quality operational BMPs, the gas collection system wells and pipelines will capture an average of 85 percent of the landfill-produced gases; thus, about 15 percent of the gas generated in the landfill will be released as fugitive emissions. (The basis for this estimate is presented in a following section). Several other actions are taken to minimize these emissions:

- Gauge pressure is negative at the gas extraction well.
- Nitrogen and oxygen concentrations are monitored to minimize excess air infiltration.
- LFG temperatures at the gas extraction wells are monitored to limit the potential for subsurface fires.
- $CH_4$ concentrations across the entire landfill surface are monitored to allow identification and correction action for any abnormally high seeps of $CH_4$ gas from the landfill surface.

### 12.4.2 Mobile Source Emissions

Mobile tailpipe exhaust emissions are generated during operation of the landfill by the following activities:

- Onsite service trucks and heavy equipment
- Collection trucks, transfer trucks, and passenger vehicles that deliver various waste materials
- Passenger vehicles associated with landfill employee commuting

Tailpipe emissions will also be generated by various types of equipment during construction of the new landfill cells.

### 12.4.3 Electricity Consumption

Electricity from the power grid and LFGTE plant is used at the landfill, primarily to run the blowers for the gas collection system. By all relevant accounting standards, the GHG emissions associated with production of electricity are included in project or entity-wide inventories, even though these emissions occur at sources owned and operated by others.

The LFGTE plant produces electricity that is considered “green” or net-zero GHG emissions because, as noted above, the emissions from combustion of LFG are biogenic. A portion of that power is consumed by CCL. However the owner of the LFGTE plant, Ameresco, also contractually owns the rights to sell Renewable Energy Credits (REC), which are a tradable commodity that convey the claims to any environmental attributes of the renewable power and are measured in kilowatt-hours or

megawatt-hours. An “unbundled REC” refers to sale of a REC to one party where the actual renewable power is sold to or consumed by another party. By the relevant accounting standards (WRI, 2015; TCR, 2013; EPA, 2016a), when renewable power is generated and consumed onsite, but an unbundled REC representing that power is sold, then the entity consuming the actual power can no longer treat the power as “green” for the purposes of GHG emission inventories.

If the LFGTE plant is expanded in the future, and CCL opts to enter into a contract for construction and operation of the system under which CCL would own unbundled RECs from the associated power generation, or CCL opts to renegotiate the existing contract to take unbundled RECs, it would then have the ability to apply those RECs to reduce the landfill footprint.

# 12.5 Methodology

This section summarizes the methodology and assumptions used to calculate the GHG emissions associated with the Proposed Project. A GHG inventory was previously prepared and included as part of the Original Draft EIR circulated for public review in July 2014. CCL subsequently commissioned the preparation of an updated GHG inventory, which in particular includes modeled LFG generation for each year of the landfill life, versus only the peak year generation reported previously.

## 12.5.1 Evaluation Procedure

Impacts of the Proposed Project have been evaluated using the principles of the GHG Protocol Project Accounting Standard (GHG Protocol Initiative, undated). Most importantly, the analysis uses the concept of comparison of the Proposed Project to the baseline to estimate project impacts.

Using this procedure, the user attempts to define all primary and secondary effects of the Proposed Project activity and the GHG sources and sinks associated with those effects. The user also defines the most probable baseline, which is the primary and secondary effects that would occur in the future if the Proposed Project is not implemented. Total net GHG emissions are estimated for both the Proposed Project and the baseline case, and the Proposed Project impacts are evaluated as the difference of the two. Baseline cases are typically dynamic, acknowledging that emissions will change with time, and thus are not a static baseline that assumes annual emissions would remain at the rate at the beginning of the Proposed Project.

Thus for the Proposed Project, LFG production, transportation impacts, power use, and other factors were calculated based on estimated annual quantity of waste accepted. For the CCL baseline case, it is assumed that acceptance of new waste ends in 2016; however the production of LFG, and thus emissions associated with that gas and the electricity needed to collect and burn the gas, continue well into the future. The additional GHG impacts that would result from approval and implementation of the Proposed Project are thus the difference of total primary and secondary emissions with the Proposed Project and the total primary and secondary emissions in the baseline case.

## 12.5.2 Landfill Gas Emissions

Several factors are relevant to the estimation of GHG emissions associated with releases of LFG. These include the rate at which LFG is generated by the waste, the capture efficiency of the gas collection system, the methane destruction efficiency for the flares and LFGTE plant, and the fraction of methane which is oxidized as the uncaptured gas passes through the landfill cover. Each is discussed below.

### 12.5.2.1 Landfill Gas Generation

To calculate LFG generation rate, this evaluation uses first order decay modeling using the EPA LandGEM model. First order decay modeling calculates LFG generation on the basis that a given fraction of the waste will decompose each year and yield a given amount of LFG. This is the most common method of predicting gas generation rate.

At CCL the majority of the gas is captured by the collection system and combusted in the flares and LFGTE plant. The fraction not collected passes through the landfill cover and is emitted to the atmosphere, although as noted below a portion is oxidized in the landfill cover and thus is converted to biogenic $CO_2$ as with the combustion systems.

#### 12.5.2.2 Landfill Gas Collection Efficiency

Prior to the adoption of California's Landfill Methane Rule, EPA and CARB assumed a default or blanket 75 percent collection efficiency rate for landfills with a GCCS. In its evaluation of the rule's effectiveness, CARB estimated that statewide collection efficiency would increase to 85 percent. (CARB, 2009) According to research of available data, however, the LFG actual capture efficiency rate varies greatly among landfills. The collection efficiency is dependent on the type of cover and the purpose and effectiveness of the GCCS.

Based on engineering analysis performed by Golder Associates (2016), after the 2010 upgrades to the CCL gas collection system, collection efficiency at CCL was conservatively documented to be approximately 81.7 percent. This estimate is based on comparison of measured flowrate of collected gas to gas generation rate modeled per the procedures noted above. However, CCL has proposed a BMP (described in Chapter 11, Air Quality, of the Partially Recirculated Draft EIR) to increase LFG collection efficiency through management of daily, intermediate, and final cover, including converting areas of intermediate cover to final cover. According to analysis by SCS Engineers, this BMP would increase the collection efficiency to 85 percent (SCS Engineers, 2016). The analysis is based on the principle that different cover types result in different LFG collection efficiencies. SCS Engineers specifically found that converting 40 acres of existing immediate cover to final cover would achieve an LFG collection efficiency of 85 percent at CCL. This same concept would be applied to the Proposed Project, although any combination of daily, intermediate, and final cover may be used to achieve 85 percent efficiency. Thus, 85 percent efficiency is assumed for the remainder of the landfill life. This collection efficiency does not assume the installation of any additional final cover until after 2020, which could result in an even higher collection efficiency.

#### 12.5.2.3 Combustion Device Destruction Efficiency

While the engines with the LFGTE plant and flares are highly efficient at burning the $CH_4$ and thus converting it to biogenic $CO_2$, no combustion device achieves complete destruction. Therefore, a very small fraction of the $CH_4$ collected will pass through these devices without combustion and will constitute a non-biogenic GHG emission.

Methane combustion efficiency of the flares at CCL is estimated at 99.96 percent. Combustion efficiency of the combustion turbines at CCL is estimated at 99.98 percent. These estimates are based on analysis performed by SCS Engineers on behalf of the Solid Waste Industry for Climate Solutions (SCS Engineers, 2007). A total of six air emission source tests have been conducted on the flare, and reported methane destruction efficiency exceeded 99.97 percent in all cases; thus the estimate of 99.96 percent is conservative. For the combustion turbines, EPA's AP-42 default emission factors for natural gas fired turbines, default emission factors for gaseous biofuels in EPA's GHG reporting program (40 CFR 98 Subpart C), and default emission factors for LFG combustion in the GHG Protocol calculation tools are all equivalent to a destruction efficiency of approximately 99.98 percent.

#### 12.5.2.4 Landfill Cover Methane Oxidation

When LFG passes through a landfill cover, a portion of the methane is oxidized to $CO_2$. The rate at which this occurs is referred to as the oxidation rate. EPA recently amended its GHG reporting regulation (40 CFR 98 Subpart HH) to adopt oxidation based on the methane emission rate per square meter through the landfill surface (i.e., flux). The flux is dependent on the methane generation rate and landfill cover area. Based on the EPA methodology, lower fluxes (and thus higher residence time of the gas in the landfill cover) result in higher oxidation rates.

The methane oxidation rates estimated by EPA for various fluxes are shown in Table 12-1, and were calculated using a database of field and laboratory measurements.

Table 12-1. Methane Oxidized in Landfill Cover by Flux Rate
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Flux Rate ($g/m^2/day$) | Percent Oxidized |
|---|---|
| >70 | 10 |
| 10<rate<70 | 25 |
| <10 | 35 |

Note:
$g/m^2/day$ = grams per square meter per day

These flux-based emission rates are more reliable than the default oxidation value of 10 percent used in many GHG inventories. CCL LFG flux was estimated by dividing the uncollected portion of the generated gas (i.e., 15 percent of the gas generation rate, based on the estimated 85 percent collection efficiency with the addition of a BMP to increase LFG collection efficiency noted above and described in Chapter 11 of the Partially Recirculated Draft EIR) by the landfill surface area. Because the gas generation rate and therefore the gas flux at the landfill changes annually, and in the case of the Proposed Project, the new cells are added incrementally, the methane oxidation rate can change with time. In the baseline case without construction of the new landfill cells, oxidation rate is estimated to remain at 25 percent through 2028, and based on declining gas generation rate to increase to 35 percent thereafter. With the Proposed Project, oxidation rate is estimated to be 25 percent through the life of the project.

### 12.5.3 Methane Global Warming Potential

For consistency with the CARB mandatory GHG reporting program, CCL GHG impacts were estimated using IPCC SAR GWP values (described in Section 12.1.2, Greenhouse Gases). Therefore, a GWP of 21 is used for $CH_4$.

### 12.5.4 Sequestration

A substantial portion of the carbon in organic waste material placed in landfills is stored (or "sequestered") for long periods of time. Thus landfills serve as a sink for $CO_2$, which is removed from the atmosphere by growth of trees, crops, or other biomass.

For example, in accordance with IPCC methodology, EPA quantifies two types of landfill carbon storage in the latest national emission inventory (EPA, 2015a) under Land Use, Land-Use Change, and Forestry. For the "Forest Land Remaining Forest Land" category, annual storage of harvested wood products in solid waste disposal facilities is estimated at 62.3 MMT $CO_2e$, as compared to an annual net increase in storage in the actual forests of 705 MMT $CO_2e$. For the "Other" category, annual increase in landfill carbon storage from yard trimmings and food scraps is estimated at 12.6 MMT $CO_2e$. These categories thus represent the annual storage in landfills of carbon which was removed from the atmosphere by forests, residential and commercial landscaping, and agricultural crops. CARB does not currently include these emissions in the state-wide inventory.

However the issues associated with quantifying the sequestration benefits of a particular landfill are complex. The atmospheric removal of carbon occurs in the forest, farm field, or residential development and not at the landfill. For forest wood products and some food products, a significant fraction of that atmospheric removal may have occurred outside of California. Also, in some cases, the storage of carbon in wood products may have been quantified as a net benefit or penalty in carbon offset projects for forest protection. Therefore, to be conservative, this GHG analysis does not quantify the carbon storage at CCL.

### 12.5.5 Equipment Emissions

Mobile source emissions from the landfill include the GHG emissions from off-road equipment such as dozers, scrapers, and compactors. The equipment emissions do not include waste haul vehicles, which are quantified separately.

The increase in equipment emissions was calculated by estimating the number of additional equipment items and hours of daily operation needed for the Proposed Project, and proportioning the resulting emissions for other years based on quantity of waste accepted. SCAQMD's default off-road equipment emission factors, which incorporate average engine horsepower and average load factors for different equipment types, were applied to the hourly utilization to estimate emissions.

Similarly, construction related emissions were calculated based on estimated quantity and type of construction equipment items. SCAQMD factors were again used.

### 12.5.6 Vehicle Emissions

Haul vehicle emissions were calculated assuming 20 tons of waste per trip, an assumed round trip distance of approximately 80 miles, and an estimated fuel efficiency of 5.8 miles per gallon. The trip distance is an approximation of the round trip distance to transfer stations that deliver or will deliver waste to CCL. The actual distance will be dependent on future waste generation, contractual arrangements, and site conditions change.

CCL does not own or control the haul vehicles that haul waste to the site, nor is it the generator of that waste. The waste will continue to be generated in the absence of the Proposed Project. In the absence of the Proposed Project, it is possible that alternative waste disposal locations could be farther away and result in higher GHG emissions from longer haul routes and vice versa. Nonetheless, this analysis includes the estimated emissions of haul vehicles with the assessment of impacts of the Proposed Project, without attempt to include emissions of transport of waste to other locations in the baseline case.

Onsite and offsite use of passenger vehicles are included based on estimated workforce. Passenger vehicle use for operations is estimated to peak at less than 70 MT $CO_2e$ per year and is therefore omitted for simplicity.

### 12.5.7 Electricity Consumption

Onsite buildings and equipment use electricity. The largest use of electricity onsite is the GCCS. This electricity is generated from a variety of sources, including fossil fuels. Accordingly, the GHG emissions associated with the generation of electricity are included as part of this analysis.

Beginning in 2011, LFG from CCL was destroyed in an LFGTE facility. The facility uses two turbines to destroy LFG and generate electricity, and a portion of that electricity is consumed onsite. The electricity is considered to be a renewable fuel source, and the $CO_2$ emissions are biogenic because they are LFG-derived. However as noted above, the GHG benefits of this power generation are conveyed with the RECs which are sold from the project. Therefore, in accordance with the relevant accounting standards, for analysis of Proposed Project and baseline cases, this analysis quantifies GHG impacts of all power consumed onsite as if it were purchased from the grid, which is a conservative approach.

The GHG emissions from electricity use were calculated using emission factors from EPA's eGRID database. Blower power consumption was estimated by proportioning the actual 2009 power consumption based on estimated collected LFG quantity. Building power was assumed to be unchanged from 2009 levels. Electricity use associated with site buildings was assumed to be constant, while electricity use associated the GCCS was scaled from reported use based on the amount of methane recovered.

# 12.6 Potential Impacts

## 12.6.1 California Environmental Quality Act Guidelines

The *CEQA Guidelines* include several provisions that address the evaluation of the significance of the potential GHG impacts of a project. The relevant portions of the *CEQA Guideline*s are excerpted below. The basic provisions governing the determination of significance are set forth in Guideline 15064.4:

**CEQA Guideline 15064.4 (a).** The determination of the significance of GHG emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate, or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

1. Use a model or methodology to quantify GHG emissions resulting from a project. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; or
2. Rely on a qualitative analysis or performance based standards.

**CEQA Guideline 15064.4 (b).** A lead agency may consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The following CEQA guideline may be applicable if there is a previously approved plan or mitigation program that is relevant to the analysis.

**CEQA Guideline 15064 (h)(3).** A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including, but not limited to, water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, and plans or regulations for the reduction of GHG emissions) which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, or integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency.

When relying on a plan**,** regulation or program, the lead agency should explain how implementing the particular requirements in the plan**,** regulation, or program ensure that the project's incremental contribution to the cumulative effect is not cumulatively considerable.

If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding that the project complies with the specified plan or mitigation program addressing the cumulative problem, an EIR must be prepared for the project.

## 12.6.2 Evaluation of Proposed Project Significance

### 12.6.2.1 Overview of Significance Criteria

The directives in the CEQA Guidelines cited above in Section 12.6.1 have been considered in several court decisions, most notably the decision by the California Supreme Court in *Center for Biological Diversity v. California Dep't of Fish and Wildlife (Newhall)* 62 Cal.4th 204 (2015). That decision set forth several options that lead agencies may consider for evaluating the cumulative significance of a proposed project's GHG emissions:

1. A calculation of emissions reductions compared to a BAU scenario based upon the emissions reductions in CARB's Scoping Plan, including examination of the data to determine what level of reduction from BAU a new land use development at the proposed location must contribute in order to comply with statewide goals.
2. A lead agency might assess consistency with AB 32's goals by looking to compliance with regulatory programs designed to reduce GHG emissions from particular activities.
3. Use of geographically specific GHG emission reduction plans to provide a basis for tiering and streamlining of project-level CEQA analysis.
4. A lead agency may rely on existing numerical thresholds of significance for GHG emissions, though use of such thresholds is not required.

As described below, this updated evaluation assesses significance of the Proposed Project's impacts to GHG emissions and climate change in accordance with the first three methods of analysis provided by the Court in *Newhall*. Each method described below provides an independent and alternative analysis regarding the Proposed Project's impacts. There is no applicable existing numerical threshold of significance for GHG emissions and the *Newhall* decision specifically found that use of a numerical threshold is not required. Accordingly, this Partially Recirculated Draft EIR does not include the fourth and final method of analysis provided for by the Court in *Newhall*.

### 12.6.2.2 Calculation of Emissions Reductions Based on the Scoping Plan

Significance of CCL GHG emissions is assessed in Section 12.6.3 by comparing CARB's BAU forecast and estimated reductions against that forecast needed to achieve California's emissions targets. BAU emissions are assumed to be the future net GHG emissions without the implementation of Cap-and-Trade, sector-specific GHG reduction programs (such as that for solid waste management), and other mitigation actions. Using current CARB estimates of 2020 BAU emissions of 509 MMT $CO_2e$, and historical 1990 emissions of 431 MMT $CO_2e$, a 15.3 percent reduction of 2020 emissions as compared to BAU would be required for the State to achieve 1990 emission levels in 2020.

The Court in *Newhall* held that a lead agency may use "the AB 32 goals themselves to determine whether the project's projected greenhouse gas emissions are significant." *Newhall*, at 223. The Court also noted that several Court of Appeal decisions have reached the same result. *Id.* The Court stated, however, that there is a further requirement when a lead agency uses AB 32 goals and emissions reductions calculated from those goals as a significance criterion. The lead agency must also demonstrate that the project-level emissions reductions are sufficient to be consistent with achieving the statewide goal. *Newhall,* at 225–26. Stated another way, "a lead agency might be able to determine what level of reduction from business as usual a new land use development at the proposed location must contribute in order to comply with statewide goals." *Newhall*, at page 229.

Applying this logic to the landfill project, it should be demonstrated whether the Proposed Project is consistent with targeted GHG emission reductions for the waste management sector. According to the CARB 2020 BAU forecast, estimated emissions from the waste and recycling sectors (landfills and composting) are 9.4 MMT CO2e, and from the 2014 update to the Scoping Plan the waste management sector contribution to the required emission reductions is 1.8 MMT CO2e. Thus the Scoping Plan targets a 15.3% reduction as compared to BAU for statewide total emissions, and a 19.1% reduction for waste sector emissions. The assumed waste sector reductions are a result of the Landfill Methane Control Measure; the other actions contemplated in the framework noted above are intended to support the mid and long range reduction goals, but are not included in the 2020 goal.

For a particular landfill, BAU is independent of quantity of waste disposed. CARB's projections utilize estimated total statewide quantity of waste in the future and average impacts per unit of waste, and does not examine individual landfills. Whether waste is disposed in one landfill versus another does not change the BAU forecast. Thus, CCL's responsibility is for proper management of the waste which is transported to it, and the relevant factor for BAU comparison is the fraction of LFG produced by that waste which is captured and destroyed. Based on information from CARB and review of documentation for the current California GHG inventory, the 2020 BAU forecast assumed 75 percent capture of LFG and 99 percent destruction of the captured LFG.

For CCL, LFG capture from both existing and new portions of the landfill will achieve an estimated 85 percent capture (with the addition of a BMP to increase LFG collection efficiency noted above and described in Chapter 11 of the Partially Recirculated Draft EIR) and greater than 99 percent destruction efficiency. Thus, the Proposed Project will achieve greater than both the statewide 15.3 percent reduction and waste sector 19.1 percent reduction of emissions as compared to the BAU scenario. (Using hypothetical emissions for simplicity, a landfill producing 100 MT $CO_2e$ of methane, capturing at 75 percent, and burning at 99 percent would emit 25.75 MT $CO_2e$ of methane. The same landfill capturing at 85 percent and burning at 99 percent would emit 15.85 MT $CO_2e$, or a 38.4 percent reduction as compared to BAU). The Proposed Project is therefore deemed to result in less-than-significant GHG impacts up to 2020.

Because of uncertainties regarding future state emission targets for the waste management sector, the lack of post-2020 BAU forecasts, and the increasing actual project emission impacts as shown below, the same certainty does not exist regarding consistency with state and regional GHG reduction plans in subsequent years. It is therefore assumed that Proposed Project impacts are potentially significant and unavoidable in years after 2020.

#### 12.6.2.3 Consistency with CARB Regulatory Directives

As described in Section 12.2.2, CARB's 2008 Scoping Plan initiated the process of identifying opportunities to achieve GHG reductions from the waste management sector. Control of landfill methane emissions was identified as an early action measure and the Landfill Methane Control Measure became effective in June, 2010.

In addition, CARB continues to work to formulate strategies for further GHG emissions reductions at landfills. CARB's future actions are anticipated to be directed at:

- Increasing use of different waste alternative technologies;
- Increasing diversion of organics and other recyclable commodities from landfills
- Potentially phasing out of organics in landfills;
- Greater reductions to the volume of waste generated;
- Increasing recycling/reusing products at end-of-life, and remanufacturing these materials into beneficial products;

- Expanding the current waste management infrastructure to accommodate the increases in recycling and remanufacturing of waste material that would occur in order to meet the GHG and waste reduction goals, including co-location of new waste treatment facilities at existing waste sites to minimize permitting issues and environmental impacts;
- Including landfills in the Cap-and-Trade regulation; and
- Implementation of BMPs for landfills, which may include specific requirements for gas collection system design, construction, timing, and operation; landfill unit and cell design and construction; waste placement methods; daily and immediate cover materials and practices; use of compost or other biologically active materials in cover soils; and organic materials management.

**Landfill Methane Control Measure**

The Landfill Methane Control Measure regulation is designed to reduce methane emissions from MSW landfills and imposes more stringent requirements for methane collection and control, component leak testing, and surface emissions monitoring. The measure requires installation of gas collection and control systems at certain MSWs, contains performance standards for the gas collection and control systems, and specifies monitoring and maintenance requirements to ensure that the system is being maintained and operated in a manner to minimize methane emissions.

For CCL, LFG capture from both existing and new portions of the landfill achieves an estimated 85 percent capture and greater than 99 percent destruction efficiency. The existing GCCS complies with the Landfill Methane Control Measure and SCAQMD Rule 1150.1.

**CARB Framework for Longer-Term GHG Emissions Reductions**

The Proposed Project furthers the goals and strategies that CARB is studying currently for further long-term increases in GHG reductions for the waste management sector. The project will include a possible new composting facility, proposes a site for a future technology conversion facility, and will expand the life of a facility that accepts diverted waste for beneficial use. The project is therefore consistent with the intended long-term waste management strategies being contemplated by CARB.

The Proposed Project is consistent with CARB regulatory directives and is therefore deemed to result in less-than-significant GHG impacts up to 2020.

Because of uncertainties regarding future state emission targets for the waste management sector, the lack of post-2020 BAU forecasts, and the increasing actual project emission impacts as shown below, the same certainty does not exist regarding consistency with state and regional GHG reduction plans in subsequent years. It is therefore conservatively assumed that Proposed Project impacts are potentially significant and unavoidable in years after 2020.

### 12.6.2.4 Consistency with County Community Climate Action Plan

The Proposed Project supports the goals and policies of the CCAP and assists the County in achieving the CCAP's GHG emissions reduction target of 11 percent below 2010 levels by 2020, as specifically described in Table 12-2.

Table 12-2. Project Consistency with Applicable CCAP Action Items
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| CCAP Action Items | Analysis of Project Consistency |
|---|---|
| **BE-1: Green Building Development**. Encourage new development to voluntarily exceed requirements of Title 24, California Building Code. Promote and incentivize at least Tier 1 voluntary standards. | **Consistent.** The landfill is largely an outdoor operation. The Proposed Project proposes only a few new onsite structures (i.e., a new access gate, administrative buildings, scale house, scales, and fencing and signage). The new administrative buildings will comply with the County's Green Building Program. |
| **BE-2: Energy Efficiency Programs.** Encourage energy-efficiency retrofits in at least 20 percent of existing commercial buildings over 50,000 square feet. | **Not Applicable.** None of the existing onsite buildings exceed 50,000 square feet. |
| **BE-3: Solar Installation.** Encourage existing and new development to voluntarily install solar systems, where economically and technically appropriate. | **Not Applicable.** The CCL site is not a suitable location for significant solar installation. Buildings are small and thus provide limited space for solar panels, the landfill surface changes with time as cells are added and filled, and the filled and closed cells include engineered covers intended to minimize LFG emissions. |
| **BE-4: Alternative Renewable Energy Programs.** Promote development of alternative renewable energies. | **Not Applicable.** The CCL site is not an appropriate location for the wind, geothermal, or hydro power generation planned with this strategy. |
| **BE-7: Landfill Biogas.** Partner with landfill operators to identify incentives to capture and clean LFG to beneficially use biogas to generate electricity. | **Consistent.** The landfill includes an LFGTE plant that captures, collects and cleans LFG to beneficially use biogas to generate electricity. The collection efficiency at the landfill is estimated at 85 percent (with the addition of a BMP to increase LFG collection efficiency), which is consistent with CARB's Landfill Methane Rule |
| **LUT-4: Travel Demand Management.** Encourage employer-sponsored vanpools and shuttles. | **Not Applicable.** The landfill employs approximately 25 onsite employees currently. With the Proposed Project, the landfill anticipates employing a total of only 50 onsite workers. With so few employees, an employer-sponsored vanpool or shuttle program would not be feasible and would achieve very minimal GHG reductions. |
| **LUT-5: Car-Sharing Program.** Promote provision of on-demand to a shared vehicle fleet. | **Not Applicable.** The landfill employs approximately 25 onsite employees currently. With the Proposed Project, the landfill anticipates employing a total of only 50 onsite workers. Landfill employees do not generally need to leave the site to perform their job duties. Accordingly, a shared vehicle fleet would provide little to no GHG reductions. |
| **LUT-9: Idling Reduction Goal.** Limit idling time for heavy construction equipment to 3 minutes, as feasible with manufacturer's specifications. | **Consistent.** The Proposed Project includes a construction emission reduction BMP, which limits idling time for heavy construction equipment. |
| **LUT-12: Electrify Construction and Landscaping Equipment.** Limit gas-powered construction and landscaping equipment, as feasible. | **Consistent.** CCL will evaluate the technical and economic feasibility of battery powered mobile sources such as dozers, scrapers, and compactors as such equipment becomes available in the future. |
| **WAW-1: Per Capita Water Use Reduction Goal.** Reduce per capita water consumption to meet statewide goal of 20 percent reduction by 2020. | **Consistent.** The Proposed Project incorporates water conservation measures, including the use of xeriscaping and drought tolerant/native plantings. In addition, weather-sensitive irrigation timers will be installed to ensure all landscaping receives only the specific amount of water that it needs. Lastly, the Project uses non-potable water to the maximum extent feasible, and will connect to CLWA's recycled water system when it is available to service the project. |

Table 12-2. Project Consistency with Applicable CCAP Action Items
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| CCAP Action Items | Analysis of Project Consistency |
|---|---|
| **SW-1: Waste Diversion Goal.** County implementation of local recycling and composting initiatives. | **Consistent.** The Proposed Project assists the County in meeting its waste diversion goals: the landfill accepts diverted waste for use at the landfill, as described in Chapter 2 of the Original Draft EIR and Partially Recirculated Draft EIR; the Project includes a possible new composting facility; and the Project also provides a site for a future conversion technology |
| **LC-2: Create New Vegetated Open Space.** Promote land restoration and re-vegetation. | **Consistent.** The Proposed Project includes Mitigation Measure BR-1, which requires a revegetation plan to offset permanent impacts to native and naturalized habitats. The measure imposes monitoring requirements and success criteria and proposed remedial actions should vegetation alliances not achieve success criteria |

As described in Table 12-2, the Proposed Project incorporates all applicable and relevant CCAP actions into the project design or as an enforceable mitigation measure. Importantly, the landfill will meet CARB's more stringent LFG collection efficiency goal of 85 percent (with the addition of a BMP to increase LFG collection efficiency noted above and described in Chapter 11 of the Partially Recirculated Draft EIR), as required by the Methane Landfill Rule. By constructing, improving, and maintaining LFG collection facilities and an LFGTE plant to transform the captured methane to a biofuel usable for electricity, the landfill is implementing CCAP Action Item BE-7, Landfill Gas, which is the only CCAP Action Item for which landfill facilities are primarily charged with responsibility for implementation. Beyond that, the landfill and the Proposed Project includes green building design consistent with the County Green Building Program, incorporates air quality and biology mitigation measures that are consistent with CCAP Action Items, accepts diverted waste, proposes a new composting facility, and provides a site for a future conversion technology facility. Accordingly, the Project is consistent with the CCAP and promotes its GHG emissions reduction goals.

In accordance with *CEQA Guidelines* Section 15184.5, the Proposed Project can "tier off" the County's certified Environmental Impact Report for the County General Plan, including the CCAP, to meet its Project-level CEQA evaluation requirements for GHG emissions. The Proposed Project demonstrates consistency with applicable CCAP actions and therefore can be determined to have a less than significant impact on GHG emissions and climate change up to 2020. Due to current uncertainty regarding long-term emissions reductions targets for the waste management sector in Los Angeles County, Project impacts are conservatively assumed to be potentially significant and unavoidable for the time period after 2020.

#### 12.6.2.5 Summary of Significance Determinations

**Consistency with State GHG Emissions Reduction Goals**

GHG impacts of the Proposed Project vary by year. The net increase in emissions, including all identified primary and secondary effects, is approximately 40,000 MT $CO_2e$ in 2020, and reaches a maximum of approximately 178,000 MT $CO_2e$ in 2037.

Impacts of the Proposed Project up to and including 2020 are less-than-significant because:

- The landfill would be constructed and operated in accordance with state plans for the waste management sector, and

- The proposed design would create a reduction in GHG emissions, as compared to CARB's BAU assumptions for landfills, which far exceeds both the 15.3 percent reduction against forecasted state-wide 2020 BAU emissions and the targeted 19.1 percent reduction for the waste management sector that will be required for the state to meet the 2020 reduction goal.

However, CARB has not estimated BAU emissions beyond 2020 or defined strategies to achieve the new 2050 emission reduction goal. It is impossible at this time to specify whether the impacts of the Proposed Project will be consistent with future state and regional plans for GHG management beyond the 2020 horizon. Accordingly, impacts of the Proposed Project beyond 2020 are conservatively found to be potentially significant and unavoidable.

Feasible mitigation to reduce this potentially significant and unavoidable impact after 2020 will be imposed to require that the Proposed Project be monitored to evaluate consistency of landfill operations with any new reduction plans or programs and, if necessary, to implement feasible adjustments to landfill operations.

**Consistency with CARB Regulatory Directives**

The Proposed Project complies with all regulations promulgated by CARB that are intended to ensure that the waste management sector does its fair share to allow the state to meet the GHG emissions reductions targets of AB 32. Accordingly, the project is determined to have a less than significant impact on GHG emissions and climate change up to 2020. However, CARB has not yet adopted regulations to attain longer-term GHG emissions reduction targets. It is anticipated that the Proposed Project will comply with those regulations, and the project furthers many of the objectives of the framework being studied by CARB, as described above. Nevertheless, due to the uncertainty concerning the specifics of future CARB regulations designed to meet post-2020 GHG emissions reduction targets, impacts of the Proposed Project beyond 2020 are conservatively found to be potentially significant and unavoidable.

Feasible mitigation to reduce this potentially significant and unavoidable impact after 2020 will be imposed to require that the Proposed Project be monitored to evaluate consistency of landfill operations with any new reduction plans or programs and, if necessary, to implement feasible adjustments to landfill operations.

**Consistency with County Community Action Plan**

In accordance with *CEQA Guidelines* Section 15184.5, the Proposed Project can "tier off" the County's certified EIR for the County General Plan (SCH # 2011081042), including the CCAP, to meet its Project-level CEQA evaluation requirements for GHG emissions. The Proposed Project demonstrates consistency with applicable CCAP actions and, therefore, the project is determined to have a less than significant impact on GHG emissions and climate change up to 2020. However, per Mitigation Measure GHG-1 in the County's certified EIR, the County is required to update its GHG inventory every 5 years and to update the CCAP to include a plan to achieve long-term GHG emission reduction targets. Accordingly, impacts of the Proposed Project beyond 2020 are conservatively found to be potentially significant and unavoidable.

Feasible mitigation to reduce this potentially significant and unavoidable impact after 2020 will be imposed to require that the Proposed Project be monitored to evaluate consistency of landfill operations with any new reduction plans or programs and, if necessary, to implement feasible adjustments to landfill operations.

## 12.6.3 Proposed Project Emissions

Estimated CCL GHG emissions with approval and implementation of the Proposed Project are presented in Tables 12-3 and 12-4. Estimated CCL GHG emissions in the baseline case, which reflect the continued future generation and management of LFG even where the landfill ceases to accept new waste after 2016, are presented in Tables 12-5 and 12-6. Tables 12-3 and 12-5 are specific to CCL GHG emissions

associated with organic material decomposition under each scenario. Tables 12-4 and 12-6 account for CCL GHG emissions associated with equipment use, electricity use, and vehicle haul under each scenario. Emissions presented are through 2050, because that is the longest horizon used in any of the State documents that set forth goals for reduction of GHGs.

Net total GHG impacts of the Proposed Project, which is the difference of the project case and baseline case estimates, are presented in Table 12-7 and Figure 12-1. As shown, Proposed Project impacts are relatively small in 2020, peak in 2037, and decline in subsequent years. Because, as explained above, biogenic $CO_2$ emissions are assumed to have net zero climate change impact, estimates of biogenic emissions are provided in the table but are not included in the estimated GHG impacts of the Proposed Project.

The following GHG analysis for LFG emissions assumes a 10-year ramp up to the maximum waste acceptance rate of 60,000 tons per week, thus projecting that the landfill is full in 2039. This is conservative because it results in a higher peak annual GHG emission, and predicts that the GHGs are released to the atmosphere earlier, as compared to a more probable waste acceptance rate. Analysis of short-term air pollutant concentrations is also conservatively based on 60,000 tons per week. In contrast, the years that construction related air pollutant and GHG emissions would occur is based on the assumption that the landfill will operate over an approximate 30-year life, and thus construction related emissions are shown to occur after 2039.

Table 12-3. Landfill Gas-Derived GHG Emissions by Year with Proposed Project
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Year | Modeled Methane Generation (MT) | Collection Efficiency | Methane Captured (MT) | Net Methane From Landfill Surface (MT) | Undestroyed Methane from Destruction Devices (MT) | Total Methane Emissions (MT) | Total Methane Emissions (MT $CO_2e$) |
|---|---|---|---|---|---|---|---|
| 2015 | 28,996 | 85% | 24,646 | 3,262 | 7.1 | 3,269 | 68,652 |
| 2016 | 29,705 | 85% | 25,249 | 3,342 | 7.4 | 3,349 | 70,333 |
| 2017 | 30,990 | 85% | 26,342 | 3,486 | 7.8 | 3,494 | 73,379 |
| 2018 | 32,384 | 85% | 27,527 | 3,643 | 8.3 | 3,652 | 76,682 |
| 2019 | 34,017 | 85% | 28,914 | 3,827 | 8.8 | 3,836 | 80,551 |
| 2020 | 35,887 | 85% | 30,504 | 4,037 | 9.5 | 4,047 | 84,983 |
| 2021 | 37,991 | 85% | 32,292 | 4,274 | 10.2 | 4,284 | 89,968 |
| 2022 | 40,318 | 85% | 34,270 | 4,536 | 11.0 | 4,547 | 95,482 |
| 2023 | 42,863 | 85% | 36,434 | 4,822 | 11.9 | 4,834 | 101,514 |
| 2024 | 45,632 | 85% | 38,787 | 5,134 | 12.8 | 5,146 | 108,074 |
| 2025 | 48,475 | 85% | 41,204 | 5,453 | 13.8 | 5,467 | 114,811 |
| 2026 | 51,263 | 85% | 43,574 | 5,767 | 14.7 | 5,782 | 121,419 |
| 2027 | 53,997 | 85% | 45,898 | 6,075 | 15.6 | 6,090 | 127,897 |
| 2028 | 56,677 | 85% | 48,175 | 6,376 | 16.6 | 6,393 | 134,246 |
| 2029 | 59,301 | 85% | 50,406 | 6,671 | 17.4 | 6,689 | 140,465 |
| 2030 | 61,876 | 85% | 52,595 | 6,961 | 18.3 | 6,979 | 146,567 |
| 2031 | 64,402 | 85% | 54,741 | 7,245 | 19.2 | 7,264 | 152,552 |
| 2032 | 66,873 | 85% | 56,842 | 7,523 | 20.0 | 7,543 | 158,407 |
| 2033 | 69,299 | 85% | 58,904 | 7,796 | 20.8 | 7,817 | 164,156 |

Table 12-3. Landfill Gas-Derived GHG Emissions by Year with Proposed Project
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Year | Modeled Methane Generation (MT) | Collection Efficiency | Methane Captured (MT) | Net Methane From Landfill Surface (MT) | Undestroyed Methane from Destruction Devices (MT) | Total Methane Emissions (MT) | Total Methane Emissions (MT $CO_2e$) |
|---|---|---|---|---|---|---|---|
| 2034 | 71,675 | 85% | 60,924 | 8,063 | 21.6 | 8,085 | 169,788 |
| 2035 | 74,002 | 85% | 62,902 | 8,325 | 22.4 | 8,348 | 175,302 |
| 2036 | 76,285 | 85% | 64,842 | 8,582 | 23.2 | 8,605 | 180,710 |
| 2037 | 78,523 | 85% | 66,744 | 8,834 | 24.0 | 8,858 | 186,013 |
| 2038 | 80,805 | 85% | 68,684 | 9,091 | 24.8 | 9,115 | 191,421 |
| 2039 | 82,869 | 85% | 70,439 | 9,323 | 25.5 | 9,348 | 196,312 |
| 2040 | 82,799 | 85% | 70,380 | 9,315 | 25.4 | 9,340 | 196,148 |
| 2041 | 81,162 | 85% | 68,988 | 9,131 | 24.9 | 9,156 | 192,268 |
| 2042 | 79,555 | 85% | 67,621 | 8,950 | 24.3 | 8,974 | 188,458 |
| 2043 | 77,977 | 85% | 66,280 | 8,772 | 23.8 | 8,796 | 184,720 |
| 2044 | 76,434 | 85% | 64,969 | 8,599 | 23.3 | 8,622 | 181,063 |
| 2045 | 74,920 | 85% | 63,682 | 8,429 | 22.8 | 8,451 | 177,477 |
| 2046 | 73,437 | 85% | 62,421 | 8,262 | 22.2 | 8,284 | 173,962 |
| 2047 | 71,983 | 85% | 61,186 | 8,098 | 21.8 | 8,120 | 170,517 |
| 2048 | 70,559 | 85% | 59,975 | 7,938 | 21.3 | 7,959 | 167,143 |
| 2049 | 69,160 | 85% | 58,786 | 7,780 | 20.8 | 7,801 | 163,827 |
| 2050 | 67,791 | 85% | 57,622 | 7,626 | 20.3 | 7,647 | 160,582 |

Table 12-4. GHG Emissions by Year with Proposed Project
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Year | Total Methane Emissions (MT $CO_2e$) | Onsite Equipment Emissions Increase (MT $CO_2e$) | Total Indirect GHG Emissions from Electricity Use (MT $CO_2e$) | Total Haul Vehicle Emissions (MT $CO_2e$) | Construction Related Emissions - Onroad and Offroad Vehicles (MT $CO_2e$) | Total Non-Biogenic Emissions (MT $CO_2e$) | Biogenic $CO_2$ (MT $CO_2e$) |
|---|---|---|---|---|---|---|---|
| 2015 | 68,652 | -50 | 342 | 8,515 | 0 | 77,459 | 82,682 |
| 2016 | 70,333 | 528 | 348 | 12,440 | 0 | 83,650 | 84,705 |
| 2017 | 73,379 | 659 | 361 | 13,329 | 4,116 | 91,843 | 88,369 |
| 2018 | 76,682 | 920 | 375 | 15,106 | 1,309 | 94,393 | 92,344 |
| 2019 | 80,551 | 1,182 | 391 | 16,883 | 0 | 99,006 | 96,998 |
| 2020 | 84,983 | 1,444 | 409 | 18,660 | 0 | 105,495 | 102,331 |
| 2021 | 89,968 | 1,705 | 429 | 20,437 | 4,008 | 116,548 | 108,330 |
| 2022 | 95,482 | 1,967 | 452 | 22,214 | 0 | 120,115 | 114,965 |
| 2023 | 101,514 | 2,228 | 477 | 23,991 | 0 | 128,210 | 122,222 |
| 2024 | 108,074 | 2,359 | 504 | 24,880 | 0 | 135,817 | 130,116 |

Table 12-4. GHG Emissions by Year with Proposed Project
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Year | Total Methane Emissions (MT $CO_2e$) | Onsite Equipment Emissions Increase (MT $CO_2e$) | Total Indirect GHG Emissions from Electricity Use (MT $CO_2e$) | Total Haul Vehicle Emissions (MT $CO_2e$) | Construction Related Emissions - Onroad and Offroad Vehicles (MT $CO_2e$) | Total Non-Biogenic Emissions (MT $CO_2e$) | Biogenic $CO_2$ (MT $CO_2e$) |
|---|---|---|---|---|---|---|---|
| 2025 | 114,811 | 2,359 | 532 | 24,880 | 3,904 | 146,486 | 138,222 |
| 2026 | 121,419 | 2,359 | 559 | 24,880 | 0 | 149,217 | 146,172 |
| 2027 | 127,897 | 2,359 | 586 | 24,880 | 0 | 155,722 | 153,967 |
| 2028 | 134,246 | 2,359 | 612 | 24,880 | 0 | 162,097 | 161,607 |
| 2029 | 140,465 | 2,359 | 638 | 24,880 | 3,828 | 172,170 | 169,090 |
| 2030 | 146,567 | 2,359 | 663 | 24,880 | 0 | 174,469 | 176,433 |
| 2031 | 152,552 | 2,359 | 687 | 24,880 | 0 | 180,478 | 183,633 |
| 2032 | 158,407 | 2,359 | 711 | 24,880 | 0 | 186,358 | 190,678 |
| 2033 | 164,156 | 2,359 | 735 | 24,880 | 3,781 | 195,912 | 197,596 |
| 2034 | 169,788 | 2,359 | 758 | 24,880 | 0 | 197,786 | 204,373 |
| 2035 | 175,302 | 2,359 | 781 | 24,880 | 0 | 203,322 | 211,007 |
| 2036 | 180,710 | 2,359 | 803 | 24,880 | 0 | 208,753 | 217,515 |
| 2037 | 186,013 | 2,359 | 825 | 24,880 | 3,755 | 217,832 | 223,895 |
| 2038 | 191,421 | 0 | 848 | 24,880 | 0 | 217,149 | 230,403 |
| 2039 | 196,312 | 0 | 868 | 24,880 | 0 | 222,060 | 236,288 |
| 2040 | 196,148 | 0 | 867 | 0 | 0 | 197,015 | 236,090 |
| 2041 | 192,268 | 0 | 851 | 0 | 3,743 | 196,862 | 231,421 |
| 2042 | 188,458 | 0 | 835 | 0 | 0 | 189,294 | 226,838 |
| 2043 | 184,720 | 0 | 820 | 0 | 0 | 185,540 | 222,339 |
| 2044 | 181,063 | 0 | 805 | 0 | 0 | 181,868 | 217,939 |
| 2045 | 177,477 | 0 | 790 | 0 | 0 | 178,267 | 213,625 |
| 2046 | 173,962 | 0 | 776 | 0 | 0 | 174,737 | 209,395 |
| 2047 | 170,517 | 0 | 761 | 0 | 0 | 171,278 | 205,250 |
| 2048 | 167,143 | 0 | 748 | 0 | 0 | 167,890 | 201,189 |
| 2049 | 163,827 | 0 | 734 | 0 | 0 | 164,561 | 197,200 |
| 2050 | 160,582 | 0 | 720 | 0 | 0 | 161,303 | 193,296 |

Table 12-5. Landfill Gas-Derived GHG Emissions by Year with Baseline Case
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Year | Modeled Methane Generated (MT) | Collection Efficiency | Methane Captured (MT) | Net Methane From Landfill Surface (MT) | Undestroyed Methane from Destruction Devices (MT) | Total Methane Emissions (MT) | Total Methane Emissions (MT $CO_2e$) |
|---|---|---|---|---|---|---|---|
| 2015 | 28,995 | 85% | 24,645 | 3,262 | 7.1 | 3,269 | 68,650 |
| 2016 | 30,295 | 85% | 25,751 | 3,408 | 7.6 | 3,416 | 71,730 |
| 2017 | 31,703 | 85% | 26,947 | 3,567 | 8.1 | 3,575 | 75,067 |
| 2018 | 31,075 | 85% | 26,414 | 3,496 | 7.8 | 3,504 | 73,580 |
| 2019 | 30,460 | 85% | 25,891 | 3,427 | 7.6 | 3,434 | 72,122 |
| 2020 | 29,857 | 85% | 25,378 | 3,359 | 7.4 | 3,366 | 70,692 |
| 2021 | 29,265 | 85% | 24,876 | 3,292 | 7.2 | 3,300 | 69,292 |
| 2022 | 28,686 | 85% | 24,383 | 3,227 | 7.0 | 3,234 | 67,918 |
| 2023 | 28,118 | 85% | 23,900 | 3,163 | 6.8 | 3,170 | 66,572 |
| 2024 | 27,561 | 85% | 23,427 | 3,101 | 6.7 | 3,107 | 65,253 |
| 2025 | 27,015 | 85% | 22,963 | 3,039 | 6.5 | 3,046 | 63,960 |
| 2026 | 26,481 | 85% | 22,508 | 2,979 | 6.3 | 2,985 | 62,692 |
| 2027 | 25,956 | 85% | 22,063 | 2,920 | 6.1 | 2,926 | 61,450 |
| 2028 | 25,442 | 85% | 21,626 | 2,862 | 5.9 | 2,868 | 60,232 |
| 2029 | 24,938 | 85% | 21,198 | 2,431 | 5.8 | 2,437 | 51,182 |
| 2030 | 24,445 | 85% | 20,778 | 2,383 | 5.6 | 2,389 | 50,168 |
| 2031 | 23,961 | 85% | 20,366 | 2,336 | 5.4 | 2,342 | 49,173 |
| 2032 | 23,486 | 85% | 19,963 | 2,290 | 5.3 | 2,295 | 48,198 |
| 2033 | 23,021 | 85% | 19,568 | 2,245 | 5.1 | 2,250 | 47,243 |
| 2034 | 22,565 | 85% | 19,180 | 2,200 | 5.0 | 2,205 | 46,306 |
| 2035 | 22,118 | 85% | 18,801 | 2,157 | 4.8 | 2,161 | 45,388 |
| 2036 | 21,680 | 85% | 18,428 | 2,114 | 4.7 | 2,118 | 44,488 |
| 2037 | 21,251 | 85% | 18,063 | 2,072 | 4.5 | 2,076 | 43,606 |
| 2038 | 20,830 | 85% | 17,706 | 2,031 | 4.4 | 2,035 | 42,742 |
| 2039 | 20,418 | 85% | 17,355 | 1,991 | 4.2 | 1,995 | 41,894 |
| 2040 | 20,014 | 85% | 17,012 | 1,951 | 4.1 | 1,955 | 41,063 |
| 2041 | 19,617 | 85% | 16,675 | 1,913 | 3.9 | 1,917 | 40,249 |
| 2042 | 19,229 | 85% | 16,344 | 1,875 | 3.8 | 1,879 | 39,451 |
| 2043 | 18,848 | 85% | 16,021 | 1,838 | 3.7 | 1,841 | 38,669 |
| 2044 | 18,475 | 85% | 15,704 | 1,801 | 3.6 | 1,805 | 37,902 |
| 2045 | 18,109 | 85% | 15,393 | 1,766 | 3.4 | 1,769 | 37,150 |
| 2046 | 17,750 | 85% | 15,088 | 1,731 | 3.3 | 1,734 | 36,414 |
| 2047 | 17,399 | 85% | 14,789 | 1,696 | 3.2 | 1,700 | 35,691 |
| 2048 | 17,054 | 85% | 14,496 | 1,663 | 3.1 | 1,666 | 34,984 |

Table 12-5. Landfill Gas-Derived GHG Emissions by Year with Baseline Case
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Year | Modeled Methane Generated (MT) | Collection Efficiency | Methane Captured (MT) | Net Methane From Landfill Surface (MT) | Undestroyed Methane from Destruction Devices (MT) | Total Methane Emissions (MT) | Total Methane Emissions (MT $CO_2e$) |
|---|---|---|---|---|---|---|---|
| 2049 | 16,717 | 85% | 14,209 | 1,630 | 3.0 | 1,633 | 34,290 |
| 2050 | 16,386 | 85% | 13,928 | 1,598 | 2.9 | 1,600 | 33,610 |

Table 12-6. GHG Emissions By Year With Baseline Case
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Year | Total Methane Emissions (MT $CO_2e$) | Waste Accepted (short tons/yr) | Onsite Equipment Emissions Increase (MT $CO_2e$) | Total Indirect GHG Emissions from Electricity Use (MT $CO_2e$) | Total Haul Vehicle Emissions (MT $CO_2e$) | Construction Related Emissions Onroad and Offroad Vehicles (MT $CO_2e$) | Total Non-Biogenic Emissions (MT $CO_2e$) | Biogenic $CO_2$ (MT $CO_2$) |
|---|---|---|---|---|---|---|---|---|
| 2015 | 68,650 | 1,560,000 | 528 | 342 | 12,440 | 0 | 81,959 | 150,481 |
| 2016 | 71,730 | 1,671,429 | 659 | 354 | 13,329 | 0 | 86,072 | 157,228 |
| 2017 | 75,067 | 0 | 0 | 368 | 0 | 0 | 75,435 | 164,536 |
| 2018 | 73,580 | 0 | 0 | 362 | 0 | 0 | 73,942 | 161,278 |
| 2019 | 72,122 | 0 | 0 | 356 | 0 | 0 | 72,478 | 158,085 |
| 2020 | 70,692 | 0 | 0 | 350 | 0 | 0 | 71,042 | 154,954 |
| 2021 | 69,292 | 0 | 0 | 344 | 0 | 0 | 69,636 | 151,886 |
| 2022 | 67,918 | 0 | 0 | 339 | 0 | 0 | 68,257 | 148,879 |
| 2023 | 66,572 | 0 | 0 | 333 | 0 | 0 | 66,905 | 145,931 |
| 2024 | 65,253 | 0 | 0 | 328 | 0 | 0 | 65,581 | 143,042 |
| 2025 | 63,960 | 0 | 0 | 322 | 0 | 0 | 64,282 | 140,209 |
| 2026 | 62,692 | 0 | 0 | 317 | 0 | 0 | 63,009 | 137,433 |
| 2027 | 61,450 | 0 | 0 | 312 | 0 | 0 | 61,761 | 134,712 |
| 2028 | 60,232 | 0 | 0 | 307 | 0 | 0 | 60,539 | 132,045 |
| 2029 | 51,182 | 0 | 0 | 302 | 0 | 0 | 51,484 | 130,459 |
| 2030 | 50,168 | 0 | 0 | 297 | 0 | 0 | 50,465 | 127,876 |
| 2031 | 49,173 | 0 | 0 | 292 | 0 | 0 | 49,466 | 125,344 |
| 2032 | 48,198 | 0 | 0 | 288 | 0 | 0 | 48,486 | 122,862 |
| 2033 | 47,243 | 0 | 0 | 283 | 0 | 0 | 47,526 | 120,429 |
| 2034 | 46,306 | 0 | 0 | 279 | 0 | 0 | 46,585 | 118,045 |
| 2035 | 45,388 | 0 | 0 | 274 | 0 | 0 | 45,663 | 115,707 |
| 2036 | 44,488 | 0 | 0 | 270 | 0 | 0 | 44,758 | 113,416 |
| 2037 | 43,606 | 0 | 0 | 266 | 0 | 0 | 43,872 | 111,171 |
| 2038 | 42,742 | 0 | 0 | 262 | 0 | 0 | 43,003 | 108,970 |
| 2039 | 41,894 | 0 | 0 | 258 | 0 | 0 | 42,152 | 106,812 |

Table 12-6. GHG Emissions By Year With Baseline Case
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Year | Total Methane Emissions (MT $CO_2e$) | Waste Accepted (short tons/yr) | Onsite Equipment Emissions Increase (MT $CO_2e$) | Total Indirect GHG Emissions from Electricity Use (MT $CO_2e$) | Total Haul Vehicle Emissions (MT $CO_2e$) | Construction Related Emissions Onroad and Offroad Vehicles (MT $CO_2e$) | Total Non-Biogenic Emissions (MT $CO_2e$) | Biogenic $CO_2$ (MT $CO_2$) |
|---|---|---|---|---|---|---|---|---|
| 2040 | 41,063 | 0 | 0 | 254 | 0 | 0 | 41,317 | 104,697 |
| 2041 | 40,249 | 0 | 0 | 250 | 0 | 0 | 40,499 | 102,624 |
| 2042 | 39,451 | 0 | 0 | 246 | 0 | 0 | 39,697 | 100,592 |
| 2043 | 38,669 | 0 | 0 | 242 | 0 | 0 | 38,911 | 98,600 |
| 2044 | 37,902 | 0 | 0 | 239 | 0 | 0 | 38,141 | 96,648 |
| 2045 | 37,150 | 0 | 0 | 235 | 0 | 0 | 37,386 | 94,735 |
| 2046 | 36,414 | 0 | 0 | 232 | 0 | 0 | 36,645 | 92,859 |
| 2047 | 35,691 | 0 | 0 | 228 | 0 | 0 | 35,920 | 91,020 |
| 2048 | 34,984 | 0 | 0 | 225 | 0 | 0 | 35,208 | 89,218 |
| 2049 | 34,290 | 0 | 0 | 222 | 0 | 0 | 34,511 | 87,452 |
| 2050 | 33,610 | 0 | 0 | 218 | 0 | 0 | 33,828 | 85,720 |

Table 12-7. Emission Impacts of Proposed Project
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| | Total Non-Biogenic Emissions (MT $CO_2e$) | | |
|---|---|---|---|
| Year | With Project | With Baseline | Project Related Increase |
| 2015 | 77,459 | 81,959 | -4,500 |
| 2016 | 83,650 | 86,072 | -2,422 |
| 2017 | 91,843 | 75,435 | 16,407 |
| 2018 | 94,393 | 73,942 | 20,451 |
| 2019 | 99,006 | 72,478 | 26,528 |
| 2020 | 105,495 | 71,042 | 34,453 |
| 2021 | 116,548 | 69,636 | 46,912 |
| 2022 | 120,115 | 68,257 | 51,858 |
| 2023 | 128,210 | 66,905 | 61,305 |
| 2024 | 135,817 | 65,581 | 70,237 |
| 2025 | 146,486 | 64,282 | 82,204 |
| 2026 | 149,217 | 63,009 | 86,208 |
| 2027 | 155,722 | 61,761 | 93,960 |
| 2028 | 162,097 | 60,539 | 101,558 |
| 2029 | 172,170 | 51,484 | 120,686 |
| 2030 | 174,469 | 50,465 | 124,004 |
| 2031 | 180,478 | 49,466 | 131,013 |

Table 12-7. Emission Impacts of Proposed Project
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| | Total Non-Biogenic Emissions ($MT CO_2e$) | | |
|---|---|---|---|
| **Year** | **With Project** | **With Baseline** | **Project Related Increase** |
| 2032 | 186,358 | 48,486 | 137,872 |
| 2033 | 195,912 | 47,526 | 148,386 |
| 2034 | 197,786 | 46,585 | 151,201 |
| 2035 | 203,322 | 45,663 | 157,660 |
| 2036 | 208,753 | 44,758 | 163,995 |
| 2037 | 217,832 | 43,872 | 173,960 |
| 2038 | 217,149 | 43,003 | 174,145 |
| 2039 | 222,060 | 42,152 | 179,908 |
| 2040 | 197,015 | 41,317 | 155,697 |
| 2041 | 196,862 | 40,499 | 156,362 |
| 2042 | 189,294 | 39,697 | 149,597 |
| 2043 | 185,540 | 38,911 | 146,628 |
| 2044 | 181,868 | 38,141 | 143,727 |
| 2045 | 178,267 | 37,386 | 140,882 |
| 2046 | 174,737 | 36,645 | 138,092 |
| 2047 | 171,278 | 35,920 | 135,359 |
| 2048 | 167,890 | 35,208 | 132,682 |
| 2049 | 164,561 | 34,511 | 130,050 |
| 2050 | 161,303 | 33,828 | 127,475 |

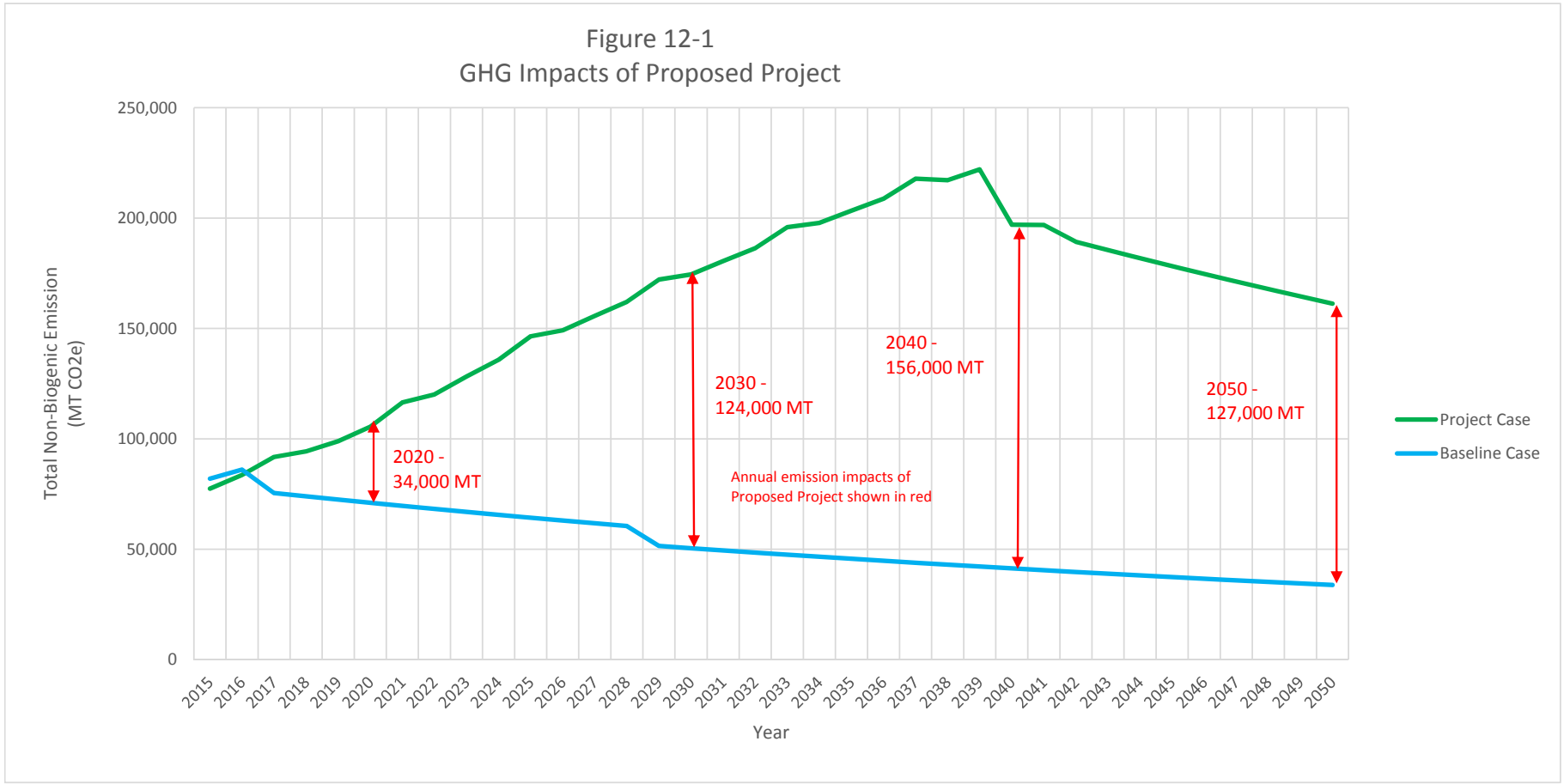


**FIGURE 12-1**
**GHG Impacts of Proposed Project**
*Chiquita Canyon Landfill*
*Recirculated Draft EIR*

# 12.7 Potential Future Enhanced Greenhouse Gas Emissions Reduction Strategies

Possible actions that could be implemented by CCL to further reduce waste management sector GHG emissions post-2020 include the following.

## 12.7.1 Composting

CARB and CalRecycle have promoted composting as a way for the state to reduce its GHG emissions in the most recent (2014) GHG Scoping Plan Revision under AB 32. Composting reduces GHG emissions by sequestering carbon in the compost, decreasing water use, decreasing soil erosion, decreasing fertilizer use, and decreasing herbicide use. Composting itself results in some increases in GHG emissions from the operation of the composting equipment, transportation of compostable feedstock, and the composting process itself. However, composting reduces more GHG emissions than it creates and it is one of the Scoping Plan elements CARB indicates could reduce GHG emissions from the waste sector to a net negative by 2050.

The GHG benefit from composting is calculated using the Compost Emission Reduction Factor (CERF) of 0.42 MT $CO_2$e per ton of feedstock composted developed by CARB in its *Method for Estimating Greenhouse Gas Emission Reductions from Compost from Commercial Organic Waste* document. The CERF reflects the net GHG impact of composting, include the GHG reduction factors and GHG emission sources listed above.

CCL has evaluated the potential GHG benefits of composting, with initial scoping of a 560-ton-per-day composting operation. If operated at full capacity, a facility of this size would result in 85,848 MT $CO_2$e of GHG reductions per year. This equates to approximately half of the peak total CCL project related impacts.

## 12.7.2 Recycling

Recycling can result in significant GHG reductions due to reduced fuel use in transport of raw materials, reduced energy use in the production of materials, and reduced end-of-life emissions from products. To quantify the potential GHG benefit of recycling, EPA's Waste Reduction Model was used. Recycling 1 ton of mixed recyclables results in a net decrease of 2.64 MT $CO_2$e, using default assumptions for haul distance, waste characteristics, and LFG collection efficiency, and assuming all gas is utilized in an LFGTE system. Based on this mixed recycle stream, recycling 50 tons per day, 5 days per week would result in an indirect GHG reduction of approximately 34,300MT $CO_2$e per year, or 19 percent of peak total CCL project related impacts.

The GHG benefit from recycling is highly dependent on the type of material recycled. If CCL chooses to use recycling to achieve a new post-2020 GHG reduction target, a refined GHG benefits analysis should be performed.

## 12.7.3 Additional Landfill Gas-to-Energy

CCL will generate more LFG than the current LFGTE plant can combust in the turbines. Installing additional capacity would result in additional power generation and additional GHG benefit from displaced electricity. By 2020, the amount of LFG flared could be sufficient to power another plant comparable to the existing facility. According to the recent GHG Protocol Scope 2 Accounting Guidance, the quantifiable GHG benefit of this power would depend on the location of the consumer of the bundled or unbundled REC, and if unbundled RECs are again sold to third parties, the GHG benefit cannot be claimed as an offset to landfill emissions. However if the future consumer of the REC is in California and uses the REC to offset grid power purchases, or if CCL opts to retain the RECs,

based on current GHG intensity of grid power the reduction claimed would be approximately 17,000 MT $CO_2e$ per year.

In addition, excess LFG could be used to produce a renewal fuel that could be used by vehicles frequenting CCL or vehicles operation in the vicinity of CCL.

### 12.7.4 Replacement of Fossil Fuel Use

Utilizing biofuel in equipment would reduce GHG emissions from equipment by displacing the fossil fuel emissions with biogenic emissions. However, the potential benefit from the use of fossil fuel is relatively low due to the relatively small portion of GHG emissions attributed to the site that are associated with fossil fuel combustion. Even if all diesel equipment utilized pure biodiesel, the GHG benefit would only be 1,900 MT $CO_2e$ per year. It is more typical for sources to utilize 5 percent biodiesel, which would result in a benefit of less than 100 MT $CO_2e$ per year.

### 12.7.5 Additional Longer-Term Waste Management GHG Reduction Strategies

CalRecycle is currently working on a GHG emissions reduction strategy for the waste management sector. The CalRecycle strategy documents are addressing long range goals (beyond 2020) and could be used to develop additional GHG emissions reduction measures for CCL in the future. It is not feasible at this time, pending further development of the CalRecycle strategy, to develop more specific long-term reductions.

## 12.8 Mitigation Measures

**GHG-1** Beginning in 2020, the applicant shall provide the Los Angeles County Department of Regional Planning (LADRP) with reports every 5 years, which shall evaluate consistency of landfill operations with current state and county GHG emission reduction plans. If LADRP finds that a report demonstrates that landfill operations do not meet the GHG emission reduction targets of then-current state and county GHG emission reduction plans, the applicant shall develop and within 1 year submit to LADRP for review and approval a GHG Emissions Reduction Plan, which shall require implementation of additional feasible GHG emissions reduction measures within the waste management sector to further reduce GHG emissions in accordance with then-current state and county goals. The GHG Emissions Reduction Plan may incorporate some or all of the following measures:

- Further or additional composting;
- Further or additional recycling;
- Upgrades or enhancements to the existing gas collection system;
- Development of alternative energy, including additional landfill gas-to-energy production capacity and/or development of other onsite renewable energy generation capacity;
- Use of alternative fuels in onsite equipment; or some combination of the listed strategies; and/or
- Other waste management sector strategies developed by CalRecycle and CARB addressing GHG emissions from waste management

**GHG-2** Following closure of the landfill, the applicant shall continue to operate, maintain, and monitor the landfill gas collection and control system as long as the landfill continues to produce landfill gas, or until emissions no longer constitute a considerable contribution to GHG emissions, whichever comes first.

# 12.9 Cumulative Impacts

## 12.9.1 Potential Cumulative Impacts

As discussed above, no approved thresholds or methodologies are currently available for determining the significance of a project's potential contribution to global climate change in CEQA documents. An individual project (unless it is a large-scale construction project, such as a dam or new freeway project, or a large fossil –fuel-fired power plant) is unlikely to generate sufficient GHG emissions to directly influence global climate change; therefore, analysis of a project's contribution to global climate change is inherently cumulative and to a considerable degree speculative. The following is a good faith effort at disclosing and evaluating the Proposed Project's potential impact as a portion of climate change impacts associated with build-out in the context of the Santa Clarita Valley Area Plan adopted in November 2012.

Cumulative build out of the Santa Clarita Valley area would increase GHG emissions by increasing overall population, square footage of commercial, industrial, and other supplementary uses, and by increasing traffic and the associated transportation emissions that make up 38 percent of statewide GHGs. Without corresponding GHG reduction strategies across all new projects and development, significant impacts would occur.

The analysis of the Proposed Project demonstrates that potential GHG emissions impacts are less-than-significant up to and including 2020, and therefore would not hinder or delay California's attainment of AB 32 objectives. The GHG effects of the Proposed Project are therefore not a significant cumulative impact up to and including 2020. However, because the State intends to prepare future plans and policies to attain further GHG emissions reductions beyond 2020 and it is impossible to assess the consistency of the Proposed Project with those future plans, the analysis of the Proposed Project finds conservatively that the impacts beyond 2020 are significant and unavoidable. Accordingly, the Proposed Project plus cumulative projects are likewise conservatively found to be cumulatively considerable.

## 12.9.2 Mitigation Measures Required for Cumulative Impacts

Mitigation measures for cumulative impacts are the same as the mitigation measures presented in Section 12.8. No additional mitigation measures are required.

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CHAPTER 18

# Project Alternatives

## 18.1 Introduction

Section 15126(d) of the *California Environmental Quality Act (CEQA) Guidelines* requires an environmental impact report (EIR) to describe a range of reasonable alternatives to the Proposed Project, or to the location of the Proposed Project, which could feasibly attain most of the basic project objectives while also avoiding or substantially lessening any of the significant environmental effects of the Proposed Project A "rule of reason" governs the range of alternatives to be evaluated in the EIR, and specifies that an EIR should only discuss those alternatives necessary to allow a reasoned choice by decision makers. Of those alternatives considered, an EIR need examine in detail only those the lead agency determines could feasibly attain most of the basic objectives of the project.

As defined by Section 21061.1 of the *CEQA Guidelines*, "feasible" means an alternative that is capable of being accomplished in a successful manner within a reasonable period of time, taking into consideration economic, environmental, social, and technological factors. In determining the feasibility of an alternative, the EIR evaluation must consider several factors including site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the project applicant can reasonably acquire, control, or otherwise have reasonable access to an alternative facility or proposed alternative site. In the case of a private applicant (i.e., not a public agency with eminent domain powers), the applicant does not have the power of eminent domain and cannot acquire the property of others for its intended use. Thus, absent other factors, an EIR is not required to evaluate and study potential offsite alternatives not owned or controlled by an applicant. In addition, if an alternative would cause one or more significant effects, over and beyond those associated with the Proposed Project after mitigation is applied, those significant effects must be discussed, but in less detail than the Proposed Project's effects.

The Chiquita Canyon Landfill (CCL) Master Plan Revision (Proposed Project) has the potential to have significant impacts related to:

- Air Quality
- Greenhouse Gas Emissions and Climate Change (post-2020)

Potential emissions of criteria air pollutants from the Proposed Project would be significant and unavoidable, even with the mitigation measures described in Chapter 11, Air Quality, of the Partially Recirculated Draft EIR. The potential for the Proposed Project to not meet State goals related to reduction of greenhouse gas emissions (GHG) is potentially significant beyond the year 2020. Therefore, per the *CEQA Guidelines*, this chapter discusses alternatives that are capable of avoiding or substantially lessening effects on air quality and climate change, while also accomplishing the primary purpose and objectives of the Proposed Project.

The purpose and objectives of the Proposed Project are restated in Section 18.2. Section 18.3 presents the alternatives fully analyzed in this Partially Recirculated Draft EIR. Section 18.4 provides a comparison of the alternatives and Section 18.5 discusses the environmentally superior alternative.

## 18.2 Project Purpose and Objectives

The basic purpose and objectives of the Proposed Project were considered in selecting alternatives for evaluation and comparison in this chapter to determine whether such alternatives can feasibly attain

most of such objectives. For reference purposes, the purposes and objectives of the Proposed Project are summarized below.

The purpose of the Proposed Project is to provide additional disposal capacity through continued operation of CCL to help meet the ongoing solid waste management needs of Los Angeles County. Development of additional economically viable disposal capacity in a reasonable timeframe is important to meet the current and anticipated needs for the Santa Clarita Valley and the greater Los Angeles area. The Proposed Project will capitalize on the unique opportunity to utilize the existing CCL facility to achieve the development of additional disposal capacity.

The primary objectives of the Proposed Project are:

- To support the County's goal of maintaining adequate reserve (excess) landfill capacity to ensure the disposal needs of the County are met (Los Angeles County Department of Public Works [LACDPW], 2015)
- To support the County's goal of managing the County's waste disposal needs, which specifically includes expansion of Chiquita Canyon Landfill (LACDPW, 2015)
- To support the County's goal to provide solid waste disposal without interruption to protect the public health and safety as well as the environment (LACDPW, 2015)
- To mitigate constraints that may limit the accessibility of Class III landfill capacity within the planning period of the most current Countywide Integrated Waste Management Plan (CIWMP) (LACDPW, 2015)
- To provide environmentally sound, safe, commercially and technically feasible, and cost-effective solid waste management solutions through continued operation and development of the existing CCL facility
- To prevent premature closure of the landfill with underutilized remaining airspace capacity
- To provide a site that could accommodate future waste conversion technology solutions
- To provide a site to accommodate processing of organic waste
- To provide a site for a permanent Household Hazardous Waste Facility (HHWF)
- To continue to provide landfill waste diversion programs that are relied upon by many local cities and communities in achieving state mandates for waste diversion

## 18.3 Evaluation of Project Alternatives

This section addresses alternatives to the Proposed Project with a view to avoiding or substantially lessening the potentially significant impacts of the Proposed Project. Six alternatives are presented, including:

- Alternative A: No Project
- Alternative B: Continued (Status Quo) Operation with 0% Increase of Daily Waste Disposal Tonnage
- Alternative C: 50% Reduction of Proposed Additional Daily Waste Disposal Tonnage
- Alternative D: Waste Reduction and Alternative Technologies
- Alternative E: Alternative New Site in Northern Los Angeles County
- Alternative F: Rail Haul Transport to Out-of-County Landfills

All figures associated with the evaluation of project alternatives are located at the end of the chapter.

## 18.3.1 Alternative A: No Project

CEQA requires that an EIR consider the No Project alternative. For this Partially Recirculated Draft EIR, the No Project Alternative is no approval of an expansion of the existing CCL, resulting in the cessation of waste receipts and consequent closure of the existing landfill operations. The current Conditional Use Permit (CUP) expiration date is 2019. However, in July 2016 the facility reached its permit-based disposal limitation of 23 million tons established in the current CUP. CCL is currently operating under a limited operational waiver issued by the Los Angeles County Department of Regional Planning, described in 1.2.2 of the Partially Recirculated Draft EIR. The limited waiver allows CCL to continue operation under the current CUP as long as the landfill and County are actively engaged in pursuit of a new CUP. The limited waiver is scheduled to expire on July 31, 2017, but the waiver will cease to be in effect at an earlier date if a final action is taken to approve or deny the pending CUP, if the pending CUP application is withdrawn, or if the waiver is revoked by the Director of Planning. In such case CCL would be required to immediately cease accepting waste disposal or beneficial use material upon notice from the County of the decision. Under the No Project Alternative, operation of the landfill will continue (e.g., no changes to the existing daily operations, including hours of operation, wastes accepted, etc.) until the limited waiver expires, after which time the landfill would close.

With the No Project Alternative, no horizontal or vertical extension of the landfill footprint would occur. The final elevation of the landfill units would not reach the permitted maximum of 1,430 feet above mean sea level, except in one area. This is a result of the effect of the 23-million-ton cap (amended to 29.4 million tons in the limited waiver), which eliminates a substantial amount of available capacity within the existing approved landfill footprint. A final grading plan for the No Project Alternative is provided in Figure 18-1 (all figures are at the end of this chapter).

Communities that currently rely on CCL for waste diversion would not have access to that activity and the composting operation and HHWF at CCL would not be developed. The set-aside of land for potential future conversion technology would not be established and site features, such as free cleanup days for the Val Verde community, would no longer be held with the closure of the facility. Operation of the landfill gas-to-energy (LFGTE) plant would continue many years beyond site closure.

The operational and maintenance requirements of Title 27 *California Code of Regulations* (CCR), Chapter 5, would need to be met. Under the closure plan requirements, closure activities would include the placement of final cover, revegetation of the closed areas, construction of permanent drainage features, removal of landfill structures (e.g., scale house, office), and provisions for site security. Closure activities would begin in accordance with the schedule in the approved Final Closure and Postclosure Maintenance Plan. The facility owner and operator would continue to operate the existing groundwater monitoring network and landfill gas (LFG) collection system during the closure and post-closure maintenance periods.

### 18.3.1.1 Environmental Analysis

In accordance with CEQA, the following analysis evaluates the environmental impacts of the No Project Alternative, as well as the secondary impacts of the possible redistribution of local and regional waste to other permitted facilities under their existing permit conditions.

**Land Use**

Once the landfill ceases to receive waste for disposal, closure activities would include the placement of final cover, revegetation of the closed areas, construction of permanent drainage features, and removal of landfill structures. There would be no impact to land use.

**Geology and Hydrogeology**

The No Project Alternative would require CCL maintain compliance with the existing waste discharge requirements (WDR) and Industrial Stormwater Pollution Prevention Plan (SWPPP) until site closure.

Once the landfill ceases to receive waste for disposal, permanent drainage features would be constructed. Potential impacts related to geology and hydrology would be less than significant.

**Surface Water Drainage**

See Geology and Hydrogeology above.

**Water Quality**

See Geology and Hydrogeology above.

**Biological Resources**

The No Project Alternative would not include any disturbance at CCL beyond that previously permitted. Potential impacts to biological resources at CCL would be less for the No Project Alternative than the Proposed Project. Potential impacts related to biological resources would be less than significant.

**Cultural and Paleontological Resources**

The No Project Alternative would not include any disturbance at CCL beyond that previously permitted. Potential impacts related to cultural and paleontological resources would be less for the No Project Alternative than the Proposed Project. Potential impacts related to cultural and paleontological resources would be less than significant.

**Traffic and Transportation**

The No Project Alternative would not involve an increase in the currently permitted disposal truck trips. However, when CCL ceases to accept Class III waste streams, the existing traffic associated with the currently permitted operations would be redirected to other landfills. This would result in additional traffic traveling on state highways and county roads, which may be experiencing congested conditions unlike the roadways serving the project site. While the local impacts would be less with the No Project Alternative, the regional impacts to transportation and traffic from the No Project Alternative would likely be greater than those of the Proposed Project, and are potentially significant.

**Air Quality**

The No Project Alternative does not include expansion of the existing landfill or construction associated with the relocation of existing facilities. There would be no increase in daily waste tonnage or vehicles beyond that already permitted and the life expectancy of the landfill would not be increased. When the landfill ceases to receive waste for disposal, local air quality emissions associated with daily operations (e.g., truck trips, active face activity, and daily cover application using heavy equipment) would be substantially lessened. Air emissions and potential impacts are not eliminated; however, because the LFG collection and disposal system would continue to operate for a minimum of 30 years; and the closure plan would require construction of the final cover and periodic maintenance trips to the facility.

Once the landfill ceases to receive waste for disposal, the potential local air quality impacts from landfill operations would be substantially lessened, and such effects would be transferred regionally to other landfill locations within the same air basin (South Coast Air Basin). Furthermore, waste could potentially be hauled longer distances to other landfills, possibly even outside the air basin. Air quality impacts resulting from the No Project Alternative could be significant and unavoidable due to increased mobile emissions.

**Greenhouse Gas Emissions and Climate Change**

Impacts related to GHG emissions and climate change would be similar to those described above for air quality. When the landfill ceases to receive waste for disposal, locally, GHG emissions associated with daily operations (e.g., truck trips, active face activity, and daily cover application using heavy equipment) would be substantially lessened, although there would continue to be GHG emissions associated with waste previously placed. Once CCL is closed, however, GHG emissions would occur at any facility where

the waste was disposed. Transportation-related air quality impacts, including increased GHG-related mobile emissions would increase with transport of waste to more distant locations. Therefore, regionally, the No Project Alternative impacts related to GHG emissions and climate change are likely to be similar to or greater than the Proposed Project and would be significant and unavoidable.

**Noise**

Under the No Project Alternative, existing landfill operation would continue until the landfill ceases to receive waste for disposal. Therefore, impacts related to noise would be similar to the Proposed Project, but would end sooner than for the Proposed Project. Impacts of the No Project Alternative related to noise would be less than significant.

**Public Services and Utilities**

Under the No Project Alternative, existing landfill operations would continue until the landfill ceases to receive waste for disposal. The demand for fire or police protection services would be similar to the Proposed Project but would end sooner than for the Proposed Project. There would be no impact related to public services and utilities from the No Project Alternative.

**Visual Resources**

The No Project Alternative does not include expansion of the existing landfill or construction associated with the relocation of existing facilities, thereby retaining the current visual character of the site. The existing landfill is an established and accepted part of the landscape. Close and long range views of CCL are limited because of the steep intervening topography and vegetative screening that surrounds the site. The existing landfill is not currently visible from existing residential areas, located to the north and northwest of the landfill, including the community of Val Verde (and would also not be visible from the proposed Sterling Gateway projects to the north).

Computer-generated visual simulations were prepared for the No Project Alternative and for each of the onsite alternatives (Alternatives B and C) for locations where views could potentially change with the alternative. The visual simulations depict the project site as it would appear with the physical changes resulting from implementing each of the alternatives. The simulations provide views toward the project site from key observation points (KOP), which are locations that are sensitive and/or representative. Photographs taken of the views from these locations provide the basis for documenting and evaluating existing visual conditions, and also serve as a base for the preparation of simulations that depict the completed alternative as it would appear in the view.

For the alternatives analysis, visual simulations were generated from three representative KOPs (KOPs 1, 2, and 6) to compare the potential visual impacts from the Proposed Project to the onsite alternatives. The location of the KOPs are identified in Figure 18-2. KOP 1 depicts a view toward CCL from the elevated residential area east of Hasley Canyon Road, along Alton Way. KOP 2 is a representative existing view of CCL from the southeastern corner of the intersection of State Route 126 (SR-126) and Commerce Center Drive and KOP 6 depicts a representative view looking northeast toward CCL from the southern portion of Chiquito Canyon Road, approximately 0.4 miles north of SR-126. The visual simulations for Alternative A for KOPs 1, 2, and 6 are presented in Figures 18-3, 18-4 and 18-5, respectively.

As shown in Figure 18-4, the view of Alternative A at KOP 2 is reduced compared to the view of the Proposed Project in this location. As shown in Figures 18-3 and 18-5, Alternative A is not visible from KOPs 1 and 6. The visibility of the landfill for Alternative A would be reduced in some areas, and eliminated for other areas, compared to the Proposed Project. Impacts would be less than significant.

Final closure of the existing facility, including revegetation of the site, would occur after the landfill ceases to receive waste for disposal. There would be no impacts to visual resources from the No Project Alternative.

**Environmental Justice and Socioeconomics**

Under the No Project Alternative, the existing landfill would continue to operate until the landfill ceases to receive waste for disposal. There would be no changes to the operations that would affect environmental justice or socioeconomics conditions. There would be no impact related to environmental justice and socioeconomics from the No Project Alternative.

### 18.3.1.2 Feasibility of Implementing the No Project Alternative

The No Project Alternative would require all waste destined for CCL after closure to be redirected to other landfills in the region or otherwise disposed, diverted, or recycled, subject to applicable permit limits, local laws and regulations, and market conditions. An overview of the landfill disposal system and long-term solid waste planning for Los Angeles County is described in the *County of Los Angeles Countywide Integrated Waste Management Plan 2014 Annual Report* (LACDPW, 2015).

The *2014 Annual Report* evaluates seven scenarios assuming various capacity options that are currently available or may become available in the future (e.g., existing in-County landfill capacity, import/exports, out-of-County disposal facilities, diversion, alternative technologies, etc.) to assist the County in meeting the Daily Disposal Demand for the planning period, from 2014 to 2029. All seven scenarios assume an increase in diversion rate considering all jurisdictions in the County are required to comply with new state laws such as the mandatory commercial recycling and diversion of organics from landfills. Scenarios II through VII show that the County would be able to meet the disposal needs of all jurisdictions through the 15-year planning period. The report concludes that in order to maintain adequate disposal capacity, jurisdictions in the County must continue to pursue all of the following strategies:

- **Maximize Waste Reduction and Recycling** – An increase in the Countywide diversion rate could significantly reduce the Daily Disposal Demand, extend landfill life, and ensure that the County will be able to meet the disposal needs of its residents and businesses. Therefore, all jurisdictions are strongly encouraged to continue to expand and enhance programs to maximize Diversion.
- **Expand Existing Landfills** – Expanded landfill capacity is necessary, provided it can be done in a technically feasible and environmentally safe manner.
- **Study, Promote, and Develop Alternative Technologies** – The development of commercial-scale state-of-the-art conversion technologies as a convenient alternative to landfilling appears to be an attainable goal. Jurisdictions must invest and actively participate in the research, promotion, and development of alternative technology facilities by:
  - Supporting legislation that places these facilities above landfilling in the waste management hierarchy.
  - Entering into waste commitment agreements.
  - Establishing partnerships with facilities and technology vendors.
- **Expand Transfer and Processing Infrastructure** – Development of additional in-County solid waste management infrastructure, such as transfer/processing, composting, and anaerobic digestion facilities, to assist jurisdictions in achieving higher diversion rates and to facilitate transport to out-of-County landfills.
- **Out-of-County Disposal (including Waste-by-Rail)** – Jurisdictions in the County may use the out-of-County disposal option to achieve their solid waste management goals. Out-of-County disposal may not only be essential for the disposal of the residual solid waste originating within the County in the future, but it also supplements and extends the life of in-County's current disposal capacity. As the disposal capacity within the County continues to diminish, and the siting of new and/or expansion of

existing Class III landfills becomes increasingly difficult, out-of-County disposal options (such as the WBR system) become more essential to meet the County's disposal needs.

The 2014 Annual Report also includes an update to the County Siting Element, a component of the County General Plan. The current Countywide Siting Element revision includes the proposed expansion of two in-County Class III landfills – Chiquita Canyon and Scholl Canyon Landfills – in order to increase landfill capacities within the County (LACDPW, 2015).

As described above, the No Project Alternative would require all waste destined for CCL after closure to be redirected to other landfills in the region or otherwise disposed, diverted, or recycled. The 2014 Annual Report acknowledges that there will be significant challenges in developing the needed processing capacity to accommodate an increased diversion rate (75 percent) by the 2020 deadline. The report concludes that a multi-faceted approach, which includes in-County landfill expansion, is required to meet the County's long-term disposal needs. Therefore, maintaining adequate reserve (excess) capacity will be essential in ensuring the disposal needs of the County are met throughout the 15-year planning period. The report further states that solid waste disposal is an essential public service that must be provided without interruption in order to protect public health and safety as well as the environment.

#### 18.3.1.3 No Project Alternative Conclusion

The No Project Alternative is a continuation of the existing operations at CCL until closure, assuming the pending CUP is not approved. This alternative neither avoids nor substantially lessens the potentially significant environmental impacts of the Proposed Project, nor accomplishes the primary purposes and objectives of the Proposed Project. This determination is based on the following:

- To the extent that the system is able to absorb the wastes currently disposed of at CCL, many of the daily operational impacts would be simply transferred from one facility to another. For example, the existing traffic associated with the currently permitted operations would be redirected to other landfills. This would result in additional traffic traveling on state highways and county roads, which may be experiencing congested conditions unlike the roadways serving the project site.
- To achieve available capacity, permit conditions for the remaining landfills in the system may have to be changed to allow increased daily waste disposal tonnage, and/or sites may have to be expanded to satisfy the short- and long-term daily disposal need with the closure of CCL. Under those circumstances, additional unanticipated significant environmental impacts of increased waste disposal could be transferred to other locations in the county or elsewhere. To change permits or expand other sites, each permitting agency would have to undertake a permit revision, as discretionary projects under CEQA. Changes to permits would potentially entail a public review process under CEQA.
- None of the basic project objectives would be achieved, such as supporting the County's goals of maintaining adequate reserve landfill capacity; managing the County's waste disposal needs, which specifically includes expansion of CCL; and providing solid waste disposal without interruption to protect the public health and safety as well as the environment. These objectives are reiterated in the County's *2014 Annual Report* as discussed in the feasibility analysis for this alternative.
- The other Proposed Project objectives, such as providing a site that could accommodate future waste conversion technology solutions and providing a location for a permanent HHWF would not be achieved.
- Closing CCL would not afford the County the opportunity to capitalize on the use of CCL's location as a potential expansion site to develop landfill disposal capacity, as well as to realize other waste disposal reductions associated with resource recovery and beneficial reuse operations.

- Under the No Project Alternative, the existing landfill waste diversion programs that are relied upon by many local cities and communities in achieving state mandates for waste diversion would end.
- The No Project Alternative would result in the premature closure of the landfill with underutilized remaining airspace capacity, thereby not maximizing the value of the site.

## 18.3.2 Onsite Alternatives

The Proposed Project includes an increase in the maximum daily waste disposal tonnage from 6,000 to 12,000 tons per day. As part of the alternatives analysis, consideration was given to two alternatives (Alternatives B and C) that would permit less daily waste disposal tonnage when compared to the Proposed Project. Alternative B is a Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage alternative, which would be continued operation of the existing landfill at 6,000 tons per day. Alternative C would reduce the proposed amount of increased daily waste disposal tonnage by 50 percent, from 6,000 tons per day to 3,000 tons per day, for a total of 9,000 tons per day.

Table 18-1 provides a comparison of the site characteristic of the Proposed Project to the onsite alternatives (Alternatives B and C). This information is discussed in further detail in Sections 18.3.2.1 through 18.3.2.8.

Table 18-1. Comparison of Proposed Project to Onsite Alternatives
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Project/Alternative Characteristic | Proposed Project | 6,000 Tons per Day Alternative (Alt B) | 9,000 Tons per Day Alternative (Alt C) |
|---|---|---|---|
| Waste Material Type | Nonhazardous solid waste, excluding sludge | Nonhazardous solid waste, excluding sludge | Nonhazardous solid waste, excluding sludge |
| Waste Disposal Rate | Permitted maximum 12,000 tons per day Permitted maximum 60,000 tons per week | Permitted maximum 6,000 tons per day Permitted maximum 30,000 tons per week | Permitted maximum 9,000 tons per day Permitted maximum 45,000 tons per week |
| Beneficial Use Material Type | Clean soil, plus material diverted from waste disposal and beneficially used | Clean soil, plus material diverted from waste disposal and beneficially used | Clean soil, plus material diverted from waste disposal and beneficially used |
| Beneficial Use Material Rate | 14,148 tons per week | 14,148 tons per week | 14,148 tons per week |
| Volume | 85,719,400 cubic yards | 59,297,700 cubic yards | 77,750,400 cubic yards |
| Total Tonnage | 86,233,716 tons | 59,653,486 tons | 78,216,902 tons |
| Projected Site Life | 24-38 years | 26 years | 26-34 years |
| New site entrance and entrance facilities | Included | Not included | Included |
| Composting Facility | Included; 560 tons per day | Included; 560 tons per day | Included; 560 tons per day |
| HHWF | Included | Not included | Included |
| Set-Aside for Future Alternative Technology Project | Included | Not included | Included |
| Permitted Hours of Operation | 24 hours per day, 6 days per week | 24 hours per day, 6 days per week | 24 hours per day, 6 days per week |

Table 18-1. Comparison of Proposed Project to Onsite Alternatives
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Project/Alternative Characteristic | Proposed Project | 6,000 Tons per Day Alternative (Alt B) | 9,000 Tons per Day Alternative (Alt C) |
|---|---|---|---|
| Typical Hours of Operation | | | |
| Commercial Customers | Mon.: 4:30 a.m. to 5 p.m.<br>Tues.- Fri.: 3 a.m. to 5 p.m.<br>Sat.: 4:30 a.m. to 2 p.m. | Mon.: 4:30 a.m. to 5 p.m.<br>Tues.- Fri.: 3 a.m. to 5 p.m.<br>Sat.: 4:30 a.m. to 2 p.m. | Mon.: 4:30 a.m. to 5 p.m.<br>Tues.- Fri.: 3 a.m. to 5 p.m.<br>Sat.: 4:30 a.m. to 2 p.m. |
| General Public | Mon.- Fri.: 7 a.m. to 5 p.m.<br>Sat.: 7 a.m. to 2 p.m. | Mon.- Fri.: 7 a.m. to 5 p.m.<br>Sat.: 7 a.m. to 2 p.m. | Mon.- Fri.: 7 a.m. to 5 p.m.<br>Sat.: 7 a.m. to 2 p.m. |

The Base Grading Plan (i.e., Excavation Plan) for Alternative B is shown in Figure 18-7. The Base Grading Plan (i.e., Excavation Plan) for the Proposed Project and Alternative C is shown in Figure 18-12.

Total tonnage of the Proposed Project and Onsite Alternatives is a calculation based on the capacity utilization (compaction rate) at CCL, which varies based on the composition of wastes received. The CCL landfill compaction rate over the past 5 years has ranged from .87 to 1.07 tons per cubic yard, for a 5-year capacity utilization average of 1.006. Tonnage equals volume multiplied by capacity utilization.

Site life is a function of disposal rate and the mix of waste disposed and beneficial use materials received. For purposes of calculating site life, an average of 14,148 tons per week of beneficial reuse material has been assumed.

### 18.3.2.1 Alternative B: Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage

The Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage Alternative (Alternative B) is continued operation of the existing landfill at 6,000 tons per day, with a maximum of 30,000 tons per week. Alternative B would increase the permitted waste footprint by approximately 116 acres, 27 acres fewer than the Proposed Project. Alternative B would result in a maximum elevation of approximately 1,495 feet, 78 feet lower than the Proposed Project. A Proposed Site Plan for Alternative B is shown in Figure 18-6, and a Proposed Excavation Plan is shown in Figure 18-7.

Alternative B would add approximately 24 years of life to the existing landfill. The permitted hours of operation would be the same as the existing facility: 24 hours per day, 6 days per week. Because Alternative B assumes no change in operation, the alternative does not relocate the site entrance, and does not include development of a HHWF, public drop-off area, or set-aside area for a waste conversion facility. Alternative B may include a composting facility consistent with the existing CUP.

The environmental setting for Alternative B is the same as described for the Proposed Project. Alternative B would be constructed within the existing site boundary, consistent with the Proposed Project, and would involve generally the same landfill-related construction activities and daily methods of operation as the Proposed Project.

As with the Proposed Project, Alternative B would require a new CUP and a Solid Waste Facilities Permit (SWFP) from the Local Enforcement Agency (LEA) to continue existing operations. Alternative B would be subject to the same local, state, and federal regulations as the existing landfill operations, and the Proposed Project. Under the closure plan requirements, the closure activities would include the placement of final cover, vegetation of the completed areas, construction of permanent drainage features, removal of landfill structures, and provisions for site security. These activities would be consistent with what is described for the Proposed Project. Alternative B includes continued operation of the existing LFGTE Plant.

### 18.3.2.2 Environmental Analysis

A qualitative analysis of the anticipated environmental impacts associated with Alternative B is provided below.

**Land Use**

No changes to land use would occur with implementation of Alternative B. Alternative B would be consistent with the existing land uses (e.g., waste disposal activities) that have been occurring at the site and waste disposal activities would occur within the existing site boundary. No impacts would occur related to land use.

**Geology and Hydrogeology**

Construction and operation of Alternative B would be similar to the Proposed Project; this alternative would meet the minimum requirements of Section 20164(a) of Title 27 CCR, and would be subject to the National Pollutant Discharge Elimination System (NPDES) General Permit requirements and the associated site-specific SWPPP and Stormwater Monitoring Program (SWMP). Potential geotechnical and hydrological impacts could be mitigated to below a level of significance through proper engineering design and permit compliance. Impacts related to geology and hydrology would be similar to those described for the Proposed Project and would be less than significant.

**Surface Water Drainage**

Construction and operation of Alternative B would be similar to the Proposed Project; this alternative would require drainage and control systems to be constructed, operated, and maintained in accordance with applicable regulatory criteria (e.g., WDRs, NPDES, Title 27, and LACDPW). Potential surface water drainage impacts could be mitigated to less than significance. Impacts related to surface water drainage would be similar to those described for the Proposed Project.

**Water Quality**

Construction and operation of Alternative B would be similar to the Proposed Project; this alternative would be required to comply with applicable regulatory criteria (See Geology and Hydrology and Surface Water Drainage above). This alternative would also be required to implement water quality monitoring and response programs in accordance with CCR Title 27, Chapter 3. Implementation of design features and best management practices would minimize potential impacts. Impacts related to water quality would be similar to those described for the Proposed Project and would be less than significant.

**Biological Resources**

Construction and operation of Alternative B would be similar to the Proposed Project; Alternative B would have a limit of disturbance similar to the Proposed Project. Site development activities at the intersection of SR-126 and Wolcott Way would not occur and cell development within the area of the existing entrance would not occur, thus reducing the actual acres of disturbance for Alternative B. Overall impacts related to biological resources would be slightly reduced than those described for the Proposed Project, but would require mitigation measures similar to those identified for the Proposed Project to reduce potential impacts to below the level of significance. Impacts would be less than significant.

**Cultural and Paleontological Resources**

See Biological Resources above.

**Traffic and Transportation**

Alternative B would not increase daily waste disposal tonnage as compared to the current baseline operation. Therefore, additional disposal truck trips would not be added to local roadways as compared to the existing condition. Alternative B would result in fewer construction trips than the Proposed

Project because there would no additional support facilities constructed with this alternative and less cell construction. Alternative B would result in fewer disposal truck trips than the Proposed Project because the daily waste disposal tonnage limit would not be increased, however, impacts are less than significant under either scenario. Because Alternative B does not relocate the site entrance, the Alternative would not result in safety improvements related to inbound and outbound traffic compared to the Proposed Project, nor would Alternative B address future potential queuing impacts compared to the Proposed Project.

**Air Quality**

Alternative B would have similar air quality impacts from construction and operation as the Proposed Project, as Alternative B would also have overlapping construction and operation phases. Alternative B would have a smaller working face than Proposed Project, fewer disposal trips, and fewer pieces of equipment than Proposed Project, resulting in a reduction in the severity of local air quality impacts; however, the significance of impacts would be similar to the Proposed Project and would be significant and unavoidable.

Furthermore, although this alternative would reduce the severity of local impacts, because this alternative would accept fewer disposal tons than the Proposed Project, waste could potentially be hauled longer distances to other landfills, possibly even outside the air basin. If displaced waste were to be disposed at a different landfill, regional air quality impacts resulting from Alternative B could be significant and unavoidable due to increased mobile emissions. If displaced waste were to be disposed of by means other than a landfill (for example, by going to a conversion technology facility or similar), impacts could potentially be reduced.

**Greenhouse Gas Emissions and Climate Change**

Impacts related to GHG emissions and climate change would be similar to those described above for air quality. Alternative B would have a smaller working face than Proposed Project, fewer disposal trips and pieces of equipment than Proposed Project, and would result in less waste placed at CCL, resulting in a reduction of GHG emissions at the site. However, emissions of GHG would occur wherever waste is disposed. Therefore, the regional and global significance of impacts would be similar to the Proposed Project and impacts after 2020 would be potentially significant and unavoidable.

**Noise**

Alternative B would result in similar noise levels as the existing condition because the working face would not increase in size and the number of pieces of equipment required to manage waste would not increase. Alternative B would result in a similar number of disposal truck trips as are currently permitted and no major changes to the facility operations would occur. Impacts would be less than significant.

**Public Services and Utilities**

Alternative B would not create a new demand for public services, including law enforcement, fire protection, or educational services. No impacts would occur related to public services, similar to the Proposed Project.

**Visual Resources**

Close and long range views of CCL are limited because of the steep intervening topography and vegetative screening that surrounds the site. The existing landfill is not currently visible from the existing residential areas, located to the north and northwest of the landfill, including the community of Val Verde (and would also not be visible from the proposed Sterling Gateway projects to the north). Alternative B would not result in future views from this location because of the steep slopes and vegetative screening.

The visual simulations for Alternative B for KOPs 1, 2, and 6 are presented in Figures 18-8, 18-9, and 18-10, respectively.

As shown in Figures 18-8 and 18-9, views of Alternative B at KOPs 1 and 2 are reduced compared to views of the Proposed Project in those locations. As shown in Figure 18-10, Alternative B is not visible from KOP 6. The visibility of the landfill for Alternative B would be slightly reduced in some areas, and eliminated for other areas, compared to the Proposed Project. Impacts would be less than significant.

**Environmental Justice and Socioeconomics**

Conditions related to environmental justice and socioeconomics would be the same for Alternative B as described for the Proposed Project. Alternative B would not disproportionately affect a minority population or a low-income population, and potential environmental justice impacts would be less than significant. Alternative B would maintain the intended land uses of the site, and would not conflict with applicable land use plans or adopted policies. Alternative B would not directly or indirectly induce population growth and would not displace existing housing or people; therefore, potential impacts would be less than significant.

#### 18.3.2.3 Feasibility of Implementing Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage Alternative

Alternative B would be constructed and operated similar to the Proposed Project and is therefore feasible from a physical operations perspective. However, without additional substantial landfill capacity, CCL would not maximize the value of the existing site and waste management infrastructure. As defined by Section 21061.1 of the *CEQA Guidelines*, "the EIR evaluation must consider several factors, including economic viability…" The site plan with a maximum elevation of 1,495 feet associated with the Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage Alternative would result in the early closure of the landfill before its capacity can be maximized.

#### 18.3.2.4 Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage Alternative Conclusion

A Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage Alternative neither avoids nor substantially lessens the effects associated with air quality or GHGs and climate change, or other potential environmental impacts, when compared to the Proposed Project. This alternative also only partially meets the objectives of the Proposed Project. This determination is based on the following:

- Alternative B would reduce the severity of potential local air quality impacts, but overall impacts would remain significant and unavoidable. Based on the South Coast Air Quality Management District (SCAQMD's) recommended methods for evaluating potential air quality impacts, any sized landfill expansion would result in a significant and unavoidable air quality impact due to the combined emissions during construction and operation.
- Alternative B neither avoids nor substantially lessens other potentially significant environmental impacts. Because there would be no significant difference in the way in which any sized landfill alternative would be constructed or operated, overall impacts would be generally the same regardless of whether 12,000 tons per day are received or whether 6,000 tons per day are received. While this alternative would result in fewer truck trips and fewer acres of disturbance, it does not reduce the level of significance of any of the impacts below that of the Proposed Project.
- Alternative B would not be as effective at meeting the long term disposal needs of the County as the Proposed Project because the Alternative does not take advantage of the site and existing infrastructure to provide excess waste capacity or the reliability and certainty associated with the daily and overall waste disposal capacity provided by the Proposed Project. The County has

indicated in its' *2014 Annual Report* that the County's disposal capacity needs must be met through a multi-faceted approach, including "successfully permitting and developing proposed in-County landfill expansions".

- The other Proposed Project objectives, such as providing a site that could accommodate future waste conversion technology solutions and providing a location for a permanent County-operated HHWF would not be achieved. Furthermore, the public would not benefit from having a new HHWF, a public drop-off area, or a set-aside area for a waste conversion facility.
- With Alternative B, no improvements would be made to the site at the intersection of SR-126 and Wolcott Way, including new lighting and landscaping that are part of the Proposed Project.
- Alternative B would occur within the existing site boundary. The Proposed Project would also occur within the existing site boundary. Therefore, there is no additional benefit gained from a smaller landfill with respect to the property boundary.
- The existing landfill operation, as limited by current CUP conditions, is a reduced onsite alternative landfill that resulted from the permitting and public hearing approval process associated with the previous application in 1996 to 1997. The ultimate landfill approval reduced and limited the size of the then-proposed landfill, limited the daily waste disposal tonnage, placing an overall tonnage cap of 23 million tons, and limiting the total amount of materials the landfill can accept irrespective of whether the landfill has remaining capacity or has reached its permitted height. As a result of these conditions, the landfill will close before its capacity can be realized. Therefore, the Proposed Project has been necessitated partially by the limitations that were imposed on the prior review of the landfill's proposed expansion. Given that the Proposed Project is a direct result of the limitations placed on the previous facility expansion and permit conditions, it is expected that a reduced landfill alternative would potentially place the facility in a similar circumstance in the future.
- A landfill, regardless of the amount of permitted daily waste disposal tonnage, is required to comply with all of the same applicable federal, state, and local statutory and regulatory requirements. As demonstrated throughout the Original Draft EIR and this Partially Recirculated Draft EIR, through proper engineering design and permit compliance, potential environmental impacts (with the exception of air quality and GHG emissions and climate change) can be mitigated to below a level of significance, regardless of the amount of daily waste disposal tonnage allowed.

#### 18.3.2.5 Alternative C: 50% Reduction of Proposed Additional Daily Waste Disposal Tonnage

Alternative C would reduce the proposed amount of increased daily waste disposal tonnage by 50 percent, from 6,000 tons per day to 3,000 tons per day, for a total of 9,000 tons per day. This is equivalent to 45,000 tons per week of municipal solid waste (MSW). Alternative C would increase the permitted waste footprint by approximately 143 acres, the same as the Proposed Project. Alternative C would result in a maximum elevation of approximately 1,500 feet, 73 feet lower than the Proposed Project. A Proposed Site Plan for Alternative C is shown in Figure 18-11, and a Proposed Excavation Plan is shown in Figure 18-12.

Alternative C would add approximately 27 years of life to the existing landfill. Alternative C would also include the proposed new entrance and entrance support facilities at the intersection of SR-126 and Wolcott Way that are included with the Proposed Project. Permitted hours of operation for Alternative C would be the same as the existing operation: 24 hours per day, 6 days per week.

The environmental setting for Alternative C is the same as for the Proposed Project. Alternative C would be constructed within the existing site boundary, consistent with the Proposed Project and would involve generally the same landfill-related construction activities and daily methods of operation as the Proposed Project.

Alternative C, like the Proposed Project, would result in an increase in the permitted daily waste disposal tonnage, which would require a new CUP and an SWFP from the LEA. Approval of the design of this alternative and monitoring of the construction, operation and closure of the facility would be subject to the same local, state, and federal regulations as the Proposed Project. Under the closure plan requirements, the closure activities would include the placement of final cover, vegetation of the completed areas, construction of permanent drainage features, removal of landfill structures, and provisions for site security. These activities would be consistent with what is described for the Proposed Project. Alternative C includes continued operation of the LFGTE Plant.

#### 18.3.2.6 Environmental Analysis

A qualitative analysis of the anticipated environmental impacts associated with the 50% Reduction of Proposed Additional Daily Waste Disposal Tonnage Alternative is provided below.

**Land Use**

Similar to the Proposed Project, Alternative C would be consistent with, and would not conflict with, any applicable local plan or policy including general plans, specific plans, zoning ordinances, and habitat conservation plans. Alternative C would be consistent with the existing land uses (e.g., waste disposal activities) that have been occurring at the site and waste disposal activities would occur within the existing site boundary. Alternative C would not result in impacts to land use.

**Geology and Hydrogeology**

Under Alternative C, impacts related to geology and hydrology would be similar to those described for the Proposed Project. As with the Proposed Project, Alternative C would be constructed to meet the minimum requirements of Section 20164(a) of Title 27 CCR, and would be subject to the NPDES General Permit requirements and the associated site-specific SWPPP and SWMP. Potential geotechnical and hydrological constraints could be mitigated to below a level of significance through proper engineering design and permit compliance.

**Surface Water Drainage**

The potential surface water drainage and water quality impacts of Alternative C would not differ substantially from those anticipated with the Proposed Project. Like the Proposed Project, there is a potential for Alternative C to substantially alter existing drainage patterns; substantially increase erosion of surface runoff and cause flooding; and create or contribute to runoff that exceeds drainage system capacity, however impacts could be mitigated to less than significant. The drainage and control system would be required to be constructed, operated, and maintained in accordance with applicable regulatory criteria (e.g., WDRs, NPDES, Title 27, and LACDPW). Impacts would be less than significant.

**Water Quality**

Potential impacts to water quality would be similar to those described for the Proposed Project, and would be less than significant. Alternative C would be required to comply with applicable regulatory criteria (See Geology and Hydrology and Surface Water Drainage above). This alternative would also be required to implement water quality monitoring and response programs in accordance with CCR Title 27, Chapter 3. Implementation of design features and best management practices would also minimize impacts.

**Biological Resources**

Alternative C would have the potential to result in direct and indirect impacts to plant and wildlife communities. Because Alternative C utilizes the same footprint as the Proposed Project, the potential loss of biological resources associated with Alternative C is similar as the Proposed Project. Alternative C would require implementing the same mitigation measures that are identified for the Proposed Project.

With mitigation, potential impacts to biological resources as a result of Alternative C would be less than significant.

**Cultural and Paleontological Resources**

Because Alternative C utilizes the same footprint as the Proposed Project, potential impacts related to cultural and paleontological resources are similar as the Proposed Project Alternative C would require implementing the same mitigation measures that are identified for the Proposed Project. With mitigation, impacts upon cultural and paleontological resources as a result of Alternative C would be less than significant.

**Traffic and Transportation**

Alternative C would result in fewer project-related truck trips than the Proposed Project, because it would be permitted for less solid waste than the Proposed Project. However, because the Proposed Project was found to have a less-than-significant impact on traffic and transportation, Alternative C would not reduce impacts below that of the Proposed Project. Potential traffic and transportation impacts would be less than significant.

**Air Quality**

Consistent with the Proposed Project, air quality impacts resulting from Alternative C would be potentially significant and unavoidable. Although Alternative C would result in fewer trucks trips, and consequently reduced local emissions, compared to the Proposed Project, the thresholds identified by the SCAQMD would be exceeded as a result of the overlapping construction and operations activities that are associated with landfill activity. Mitigation would be the same as described for the Proposed Project.

Furthermore, although this alternative would reduce the severity of local air quality impacts, because this alternative would accept fewer disposal tons than the Proposed Project, waste could potentially be hauled longer distances to other landfills, possibly even outside the air basin. If displaced waste were to go to a different landfill, regional air quality impacts resulting from Alternative C could be significant and unavoidable due to increased mobile emissions. If displaced waste were to be disposed of by means other than a landfill (for example, by going to a conversion technology facility or similar), impacts could potentially be reduced.

**Greenhouse Gas Emissions and Climate Change**

Impacts related to GHG emissions and climate change for Alternative C would be similar to those described for the Proposed Project. Alternative C would have a smaller working face than Proposed Project, fewer disposal trips and pieces of equipment than Proposed Project, and would result in less waste placed at CCL, resulting in a reduction of GHG emissions at the site. However, emissions of GHG would occur wherever waste is disposed. Therefore, the regional and global significance of impacts would be similar to the Proposed Project and impacts after 2020 would be potentially significant and unavoidable.

**Noise**

The potential noise impacts of Alternative C would be similar to the Proposed Project, but could be slightly reduced due to the need for fewer pieces of onsite equipment. Construction of Alternative C would result in a temporary direct increase in ambient noise levels around the area. However, estimated construction noise levels at existing surrounding sensitive land uses would be below the statutory requirements of the County, as was determined for the Proposed Project. The operation-related noise at all the existing noise sensitive areas would also be expected to be below the statutory requirements. Potential noise impacts associated with Alternative C would be less than significant.

**Public Services and Utilities**

Similar to the Proposed Project, Alternative C would not create a significant new demand for public services, including law enforcement, fire protection, or educational services. Alternative C would result in no impact to public services. Alternative C would operate using similar infrastructure as the Proposed Project including water, wastewater, and electrical.

**Visual Resources**

Potential impacts to visual resources under Alternative C would be similar, but slightly reduced compared to the Proposed Project. Visual changes associated with the relocation of the site entrance would be the same for Alternative C and the Proposed Project. Alternative C would result in a maximum elevation that is approximately 73 feet lower than the Proposed Project. However, this difference in elevation would result in minimal visual changes compared to the Proposed Project. Like the Proposed Project, Alternative C would not result in future views from the residential areas to the north and northwest (e.g., Val Verde, future Sterling Gateway projects) of the landfill due to the existing steep slopes and vegetative screening.

The visual simulations for Alternative C for KOPs 1, 2, and 6 are presented in Figures 18-13, 18-14, and 18-15, respectively.

As shown in Figures 18-13 and 18-14, views of Alternative C at KOPs 1 and 2 are reduced compared to views of the Proposed Project in those locations. As shown in Figure 18-15, Alternative C is not visible from KOP 6. Compared to the Proposed Project, the visibility of the landfill for Alternative C would be slightly reduced in some areas, and eliminated for other areas. Impacts would be less than significant.

**Environmental Justice and Socioeconomics**

Conditions related to environmental justice and socioeconomics would be the same for Alternative C as described for the Proposed Project. Alternative C would not disproportionately affect a minority population or a low-income population, and potential environmental justice impacts would be less than significant. Alternative C would maintain the intended land uses of the site, and would not conflict with applicable land use plans or adopted policies. Alternative C would not directly or indirectly induce population growth and would not displace existing housing or people; therefore, potential impacts would be less than significant.

#### 18.3.2.7 Feasibility of Implementing 50% Reduction of Proposed Additional Daily Waste Disposal Tonnage Alternative

Alternative C would be constructed and operated similar to the Proposed Project and is therefore feasible from an operations perspective. However, Alternative C would not allow CCL to maximize the value of the existing site and waste management infrastructure. As defined by Section 21061.1 of the *CEQA Guidelines*, "the EIR evaluation must consider several factors, including economic viability…" The site plan with a maximum elevation of 1,500 feet associated with Alternative C would result in the early closure of the landfill before its capacity can be maximized. Alternative C would meet some of the objectives of the Proposed Project, but to a lesser extent, as described below:

- Alternative C would reduce the severity of potential local air quality impacts, but impacts would remain significant and unavoidable. Based on the SCAQMD's recommended methods for evaluating potential air quality impacts, which combines emissions during construction and operation, Alternative C would result in significant and unavoidable air quality impacts.
- Alternative C neither avoid nor substantially lessens other potentially significant environmental impacts. Because there would be no significant difference in the way in which any sized landfill alternative would be constructed or operated, overall impacts would be generally the same regardless of whether 12,000 tons per day are received or whether 9,000 tons per day are received.

While this alternative would result in fewer truck trips, it does not reduce the level of significance of any of the impacts below that of the Proposed Project.

- Alternative C would occur within the existing site boundary. The Proposed Project would also occur within the existing site boundary. Therefore, there is no additional benefit gained from reduced daily waste disposal tonnage with respect to the property boundary.
- Alternative C would not be as effective at meeting the long term disposal needs of the County as the Proposed Project because the Alternative does not take advantage of the site and existing infrastructure to provide excess waste capacity or the reliability and certainty associated with the daily and overall waste disposal capacity provided by the Proposed Project. The County has indicated in its' *2014 Annual Report* that the County's disposal capacity needs must be met through a multi-faceted approach, including "successfully permitting and developing proposed in-County landfill expansions".
- A landfill, regardless of the amount of permitted daily tonnage, is required to comply with all of the same applicable federal, state, and local statutory and regulatory requirements. As demonstrated throughout the Original Draft EIR, through proper engineering design and permit compliance, potential environmental impacts (with the exception of air quality and GHGs and climate change) can be mitigated to below a level of significance, regardless of the amount of daily tonnage allowed.

#### 18.3.2.8 50% Reduction of Proposed Additional Daily Waste Disposal Tonnage Alternative Conclusion

The findings of the environmental and feasibility analysis for the 50% Reduction of Proposed Additional Daily Waste Disposal Tonnage Alternative are similar to those already identified for the Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage alternative. Alternative C neither avoids nor substantially lessens the effects associated with air quality and GHG emissions and climate change, or other potential environmental impacts, when compared to the Proposed Project.

### 18.3.3 Alternative D: Waste Reduction and Alternative Technologies

Alternative D assumes that Chiquita Canyon Landfill closes when the limited operational waiver ceases to be in effect. No landfill operations are included in consideration of Alternative D.

Alternative D consists of waste reduction techniques and alternative technologies that could potentially be applied to the solid waste management system in Los Angeles County, including source reduction, mechanical volume reduction, resource recovery, and conversion technologies. Given the large diversity of existing conversion technologies, it is not practical to provide an exhaustive description and analysis of these systems, or their many variants, in this Partially Recirculated Draft EIR. This section summarizes the primary technological, economic, and environmental advantages and disadvantages of waste reduction and conversions technologies as a whole.

#### 18.3.3.1 Source Reduction

Source reduction generally involves the alteration of manufacturing and packaging techniques and a change in consumer purchasing and use habits to minimize the amount of waste that is generated. In the United States, a significant reduction in unnecessary disposable items could result in a substantial reduction of the overall waste stream. Specific source reduction techniques that city and county jurisdictions are evaluating to meet the requirements mandated by the Integrated Waste Management Act include:

- Increasing the use of recycled materials
- Reducing packaging and increasing the use of reusable containers
- Reducing the generation of yard wastes and encouraging composting or other similar measures

- Purchasing repairable items
- Providing economic incentives to reduce waste generation and to recycle materials
- Providing convenient recycling programs such as curbside pickup or neighborhood recycling centers
- Promoting the efficient use of raw and manufactured materials

According to the County's Roadmap to a Sustainable Waste Management Future (LACDPW, 2014), source reduction is at the top of the County's resource management hierarchy because it is considered to be more effective and yield the highest benefits from an environmental, economic, and social standpoint. Source reduction preempts the need to collect, process, and/or dispose of materials by preventing their generation up front. An example of a source reduction method, is the Los Angeles County ordinance adopted in 2009 that placed a ban on single-use plastic carryout bags at supermarkets (County Code Section 12.85 et seq.).

#### 18.3.3.2 Mechanical Volume Reduction

Mechanical volume reduction involves physically diminishing waste volumes through compaction, baling, shredding, or other similar measures. Mechanical reduction can take place prior to disposal at the landfill or at the landfill site itself.

**Compaction**

The compaction of wastes can occur one or more times starting from the point of residential, commercial, or industrial generation to final disposal. Typical compaction methods include:

- Compaction units at the waste source such as under-the-counter garbage compactors in homes, and larger units capable of servicing large business or industrial refuse
- Compaction of wastes by collection vehicle, which can also maximize load capacities and collection efficiency
- Compaction of refuse at a transfer station (TS)
- Compaction at the landfill site during fill operations (currently in use by CCL)

**Baling**

Baling, or the balefill method, is a special type of compaction whereby waste material is bound into uniform-size bales prior to being placed in a fill area. Baling can result in reduction in volume. If baling occurs offsite of the landfill, economic advantages could include reduced transportation costs owing to the high density and uniform bales that increase the efficiency of transport vehicle space. Other segments of the solid waste industry have argued that the balefill method is not without its own problems. Refuse density governs the degree to which the service life of a landfill can be extended. Common densities achieved by conventional landfilling range from 1,100 to 1,300 pounds per cubic yard for in-place refuse. In some instances, these densities can be higher depending on the quality of compaction efforts and the types of refuse being received. Depending on the baling equipment, the balefill method can achieve a refuse density that could exceed 2,000 pounds per cubic yard. Even though the waste is highly compacted (dense), the bales do not resemble perfect blocks. When stacked in the landfill, air space or voids between the bales reduce the effective refuse density by approximately 5 percent. This 5 percent reduction, if accurate, would significantly increase the refuse-to-cover material volume ratio over that of a conventional landfill operation. This would mean that daily soil cover requirements could increase substantially. If the additional soil requirements were not available from excavation activities onsite, this soil would need to be imported from an offsite location.

CCL does not currently receive baled materials nor does it bale waste onsite, and the Proposed Project does not include plans to do so. In Southern California, the only operating balefill is a small landfill operation at the Pebbly Beach Landfill on Santa Catalina Island, which is approximately a 20-ton per day operation. There is no balefill operating in California at the scale of the Proposed Project.

#### 18.3.3.3 Resource Recovery

Resource recovery includes the salvaging of recyclable or valuable materials from the waste stream prior to disposal. Resources that can be recovered include reusable materials, energy in the form of LFG or through the incineration of wastes (waste to energy [WTE] process), and organic matter through composting. Paper, greenwaste/yard waste, and food waste make up the major quantity of materials targeted for recovery in the future and waste stream projections indicate that the residential sector produces the largest quantity of materials expected to be recovered through near-term recycling programs. Materials recovery facilities (MRF) combined with source-separated curbside recycling programs have been identified as the primary methods available for processing the quantities of recyclable wastes expected by county diversion programs. Diversion of greater quantities in the commercial and industrial waste sectors is also needed to achieve medium-term goals. Assembly Bill (AB) 32 mandated commercial recycling programs to be implemented by 2012, and jurisdictions throughout Los Angeles County are implementing new and enhanced commercial recycling programs.

In recent years, a greater emphasis has been placed on removing and recycling organics in the waste stream, principally through food waste programs in both the residential and commercial sectors. Food waste can be composted, often on a commingled basis with other organics, such as yard waste, to produce a usable and saleable compost material for direct transport to processing and compost facilities. An increasing number of mixed organics compost facilities have been permitted in recent years, and the trend is expected to continue. In addition, in the commercial food waste sector, programs have been implemented in various areas of the state to utilize commercial food waste in publicly owned treatment works digesters to produce energy. It is anticipated that these efforts will continue to grow in the coming years.

One of the primary challenges for food waste programs throughout the state is public acceptance and participation, because it requires a significant change in past practice and has thus encountered opposition in many areas. Public agencies and private companies implementing such programs are required to undertake significant outreach and engage in aggressive public education programs to seek greater participation in these programs. It is anticipated that these programs will continue to grow and become a staple of agency diversion programs, targeting this particular organics area of the waste stream.

**Recycling**

Recyclable material includes paper, glass, aluminum, copper, iron and other ferrous metals, cardboard, and some plastics. The most cost-effective recycling program is one that captures recyclables before refuse is deposited in the municipal waste stream. State recycling mandates have long created an extensive supply of diverted materials, but have not fully addressed the demand side of the “recycling equation.” The result has been a significant dependence on foreign markets for our recyclable materials, where there are substantially inadequate environmental controls for processing these materials. However, opportunities may exist to create partnerships between County facilities and local businesses that recover and reuse these materials, as part of the State’s Recycling Market Development Zone program or other mechanisms (LACDPW, 2014).

**Composting**

The composting of green wastes as well as food wastes (organic wastes decompose biologically into a stable nutrient rich humus-like material) reduces the residential and commercial waste stream destined for landfills.

An organized collection system is the most effective way to achieve a high diversion rate. Residents separate their recyclables and garden wastes from their other household wastes. Markets for compost material are developing, including markets for mixed organics compost materials. The County’s Source Reduction and Recycling Element targets green (compostable) waste for diversion to beneficial uses.

It is anticipated that composting programs (both traditional green waste and mixed organics operations) would constitute a significant element of overall waste reduction.

Waste reduction can also occur at the household level. The County of Los Angeles has operated a successful Smart Gardening Program for well over a decade that encourages residents to compost in their backyards, while providing discount composting bins to residents.

The proposed expansion at CCL includes a composting operation, and also includes a mixed organics component to facilitate mixed organics composting and the ability to provide jurisdictions with food waste program diversion options. The compost or shredded green waste can be sold for use as a soil enhancement, used by public agencies and private parties for landscaping purposes, and used onsite for beneficial reuse such as dust and erosion control.

**Incineration**

Another method of converting waste to energy involves the direct incineration of wastes. Incineration can reduce the waste volume by 80 to 95 percent and is the most effective method known for reducing refuse volumes. Incineration, or mass burn, is also highly controversial. In most instances, the ash that remains is hazardous and must be transported and disposed of as such. Particular concerns have also been raised about possible health effects associated with the air emissions and the ash component of the residue. Because the Los Angeles area is in nonattainment for many air emissions, permitting agency approval and public acceptance of a process that could result in further air quality degradation is unlikely. Once air pollution control systems are available that can convincingly demonstrate that no negative effects would occur, this alternative may become a viable option.

#### 18.3.3.4 Conversion Technologies

The term “conversion technologies” refers to a wide array of technologies capable of converting energy stored in wastes to chemicals, fuels, and products which can be used to create energy or make new products. Separated solid wastes used for conversion typically include: manures, food wastes (industrial, commercial and residentially-generated); fats, oils, and greases; butcher wastes; and waste plastics and waste tires. Some conversion technology-generated products and chemicals include liquid fuels, such as biodiesel, ethanol, and oil; electricity, heat and steam from combustible gases such as methane; chemicals and consumer products from oils and synthetic gases (syngas); and activated carbon for the food processing industry (State of Oregon Department of Environmental Quality, 2011).

Conversion technology facilities can use a number of process technologies, including: anaerobic digestion (AD), gasification, pyrolysis, thermal depolymerization, and transesterification. These technologies can be defined by three primary conversion processes - biochemical, thermochemical, and physicochemical. Conversion technologies do not include waste combustion (incineration). A summary of conversion technologies follows:

**Anaerobic Digestion**

AD is a biochemical conversion process that is the bacterial breakdown of organic materials in the absence of oxygen. Organisms gradually break down complex organic molecules into methane, carbon dioxide, hydrogen sulfide, and gaseous and solid residuals. This technology is predominantly applied to organic wastes (alone or with composting to biostabilize the process residue). Pre-processing of the feedstock at a MRF is needed to remove inorganic materials. Potential feedstocks are MSW-derived organic materials, wastewater treatment biosolids, manure, and food waste. Self-contained systems can achieve complete decomposition in a matter of days. The residuals from this process include inorganics, non-degradable organics, and biomass. These residuals (which can reach 25 percent or higher) require disposal, typically at a landfill. The methane produced during the process can be burned, compressed, or liquefied for fuel. AD is less efficient at reducing organic materials than thermal processes. AD does not destroy plastic, and has limited efficiency in destroying chemical compounds in woody material.

**Gasification**

Gasification is the thermal processing of waste (feedstock) using heat, pressure, and/or steam to convert materials directly into a gas. In general, thermal processes tend to be more expensive and complex than conventional WTE or AD processes. This alternative requires a relatively consistent influent feedstock material (mainly organic materials), thereby necessitating significant pre-processing of the waste stream at a MRF or a pre-processing facility associated with the WTE facility. The primary difference between thermal conversion and conventional WTE technology is that thermal decomposition of the waste occurs with either no air or insufficient air for complete combustion, which results in cleaner air emissions. Thermal processes produce intermediate products which can either be burned as fuels or used to create fuels that are used elsewhere. Thermal processes are all rapid, reducing waste to residual in a matter of minutes or seconds, rather than years in a landfill. These technologies produce less operational emissions compared to landfills due to less operation of mobile equipment. There is limited operational history and success for this technology. Residual materials such as char and tar, and slag need to be disposed. The residual slag may be used as road base or construction aggregate.

**Pyrolysis**

Pyrolysis is the thermal processing of waste using indirect heat in the absence of oxygen. This process can be used with a wide mix of organic materials (e.g., coal, wood, and organics). However, waste degradation is not as effective as with thermal oxidation, which results in some inorganic waste not being decomposed. There is a limited operational history and success using pyrolysis with mixed organics. There is also a limited history of treating the resulting syngas for use in energy conversion equipment. Residual char and liquids need to be disposed or further refined. It is not clear if this process is economical or if capacity can be met.

**Transesterification**

Transesterification (biodiesel production) is a physiochemical conversion process and involves the physical and chemical synthesis of products from feedstocks. It is primarily associated with the transformation of fresh or used vegetable oils, animal fats, greases, tallow and other suitable feedstocks into liquid fuels or biodiesel.

#### 18.3.3.5 Environmental Analysis

In the interest of providing a discussion of potential impacts associated with implementation of Alternative D, impacts associated with an AD facility are summarized from the Statewide Anaerobic Digester Facilities for the Treatment of Municipal Organic Solid Waste Draft Program EIR (California Department of Resources Recycling and Recovery [CalRecycle], 2011) below. The Draft Program EIR was prepared by CalRecycle and has been vetted through the CEQA process. While Alternative D could include technologies other than an AD facility, the Draft Program EIR is a comprehensive environmental analysis from which to base the potential impacts of implementing Alternative D and as previously noted, it is not practical to include a comprehensive analysis of all potential conversion technologies. Furthermore, should Alternative D be implemented as an alternative to the Proposed Project, a project-specific environmental document prepared by the lead agency for the jurisdiction in which such facility is located would be required, regardless of which conversion technology were selected. It is assumed for this analysis, that Alternative D would be located at a site other than CCL.

**Land Use**

AD facilities associated with Alternative D would likely be co-located at existing or new permitted solid waste facilities or as stand-alone AD facilities in areas zoned for industrial or solid waste handling activities. Therefore impacts to land use are considered minimal and less than significant.

**Geology and Hydrogeology**

Under Alternative D, impacts related to geology and hydrology would be similar to or less than the Proposed Project. As with the Proposed Project, it is assumed that the AD facilities would be constructed to meet the minimum requirements of Section 20164(a) of Title 27 CCR. Similar to the Proposed Project, potential geotechnical constraints could be mitigated through proper engineering design. Impacts would be less than significant.

**Surface Water Drainage**

Under Alternative D, impacts related to surface water drainage and water quality would be similar to or less than the Proposed Project. This alternative would involve constructing a new facility involving grading and excavation activity and alteration of topography and drainage patterns. However, with mitigation, hydrology and water quality impacts to surface and groundwater could be minimized to a less-than-significant level.

**Water Quality**

See Surface Water Drainage above

**Biological Resources**

Alternative D would likely result in fewer impacts to biological resources compared to the Proposed Project, given the smaller area needed to develop an AD facility. However, the magnitude of impacts would depend on the size, type, and location of the new facility. It is anticipated that potentially significant impacts could be reduced to less than significant.

**Cultural and Paleontological Resources**

Alternative D would likely result in fewer impacts to cultural resources compared to the Proposed Project, given the smaller area needed to develop an AD facility. However, the magnitude of impacts would depend on the size, type, and location of the new facility. It is anticipated that potentially significant impacts could be reduced to less than significant.

**Traffic and Transportation**

Alternative D would likely result in a fewer project-related trips than the Proposed Project, in large part because an AD facility would handle much less solid waste than the Proposed Project. However, the magnitude of impacts would depend on the size, type, and location of the new facility. It is anticipated that potentially significant impacts could be reduced to less than significant.

**Air Quality**

Under Alternative D, construction related emissions would arise from a variety of activities, including: grading, excavation, road construction, and other earth moving activities; travel by construction equipment and employee vehicles; exhaust from construction equipment; architectural coatings; and asphalt paving. As with the Proposed Project, impacts would likely occur within the South Coast Air Basin. Emissions associated with operations would depend on several factors, such as the size and type of AD facility, equipment needs, increased traffic, and post processing of the biogas. Operational sources of fugitive dust would primarily be processing equipment and truck movement over paved and unpaved surfaces. Although there will be emissions associated with these sources at AD facilities, the operation of these facilities would divert organics out of landfills. The AD facilities could also generate biogas to replace fossil fuels for electricity production or for vehicle transportation. AD facilities have the potential to significantly contribute positively towards the state's Global Warming Solutions Act goals. These technologies achieve significant diversion from landfill disposal and convert organic waste material into renewable energy, fuels and other products, potentially resulting in a net reduction in GHG emissions.

The net generation of emissions can be reduced when considering the life-cycle impact of this technology. By design, an AD facility would offset emissions from other sources, including the transportation of waste to remote disposal that is no longer necessary, as well as the combustion of fossil fuels offset by the generation of renewable energy in the form of electricity or green fuels. Co-location of AD facilities with MRFs maximizes this transportation reduction of residual solid waste. When factoring in diversion of materials from disposal as well as offsets from transportation and energy production, AD facilities are likely to reduce net emissions.

**Greenhouse Gas Emissions and Climate Change**

See Air Quality above.

**Noise**

Alternative D has the potential to impact noise sensitive receptors, depending on where the facility is located. However, AD facilities associated with Alternative D would likely be co-located at existing or new permitted solid waste facilities or as stand-alone AD facilities in areas zoned for industrial or solid waste handling activities. Therefore, the noise impact is assumed to be similar to the Proposed Project, and less than significant

**Public Services and Utilities**

Alternative D would operate using similar infrastructure as the Proposed Project, including water, wastewater, and electrical infrastructure. However, new infrastructure would be required as part of the development of an AD facility. It is assumed that this type of infrastructure would be part of a project plan submitted for local site plan review and would be constructed to the standards of the applicable local jurisdiction which would reduce impacts to a less than significant level.

**Visual Resources**

Alternative D has the potential for landform alterations, depending on where the facility is located. However, AD facilities associated with Alternative D would likely be co-located at existing or new permitted solid waste facilities or as stand-alone AD facilities in areas zoned for industrial or solid waste handling activities. Therefore, impacts to visual resources are assumed to be similar to the Proposed Project, and less than significant.

**Environmental Justice and Socioeconomics**

Alternative D has the potential for impacts associated with environmental justice and socioeconomics, depending on where the facility is located. However, AD facilities associated with Alternative D would likely be co-located at existing or new permitted solid waste facilities or as stand-alone AD facilities in areas zoned for industrial or solid waste handling activities. Therefore, impacts associated with environmental justice and socioeconomics are assumed to be similar to the Proposed Project, and less than significant.

### 18.3.3.6 Feasibility of Implementing Waste Conversion Technologies

This section provides a history of the County's efforts to date to evaluate and pursue the development of conversion technologies. The section also discusses the diversion potential and conversion capability, describes the competitiveness of estimated tipping fees, and describes the feasibility of physically developing a conversion technology project.

**County Efforts to Evaluate and Promote the Development of Conversion Technologies**

For over a decade, the County of Los Angeles has been actively promoting the development of solid waste conversion technologies as a way to diversify solid waste management practices. In July 1999, the Los Angeles County Board of Supervisors (BOS) formally adopted a series of recommendations that included support for the development of conversion technologies as an alternative to landfill disposal.

The Los Angeles County BOS designated LACDPW as the lead county agency advising the BOS in waste management issues and responsibility for the County's compliance with AB 939 mandates. This includes the waste diversion mandate for the unincorporated areas, as well as countywide solid waste planning responsibilities, in concert with the cities and the Los Angeles County Integrated Waste Management Task Force (Task Force). In 2005, the Task Force established the Alternative Technology Advisory Subcommittee (ATAS), an advisory group comprised of 13 members representing state and local agencies, community groups, utility and landfill operations, and the private sector. Together, the County and the ATAS are developing conversion technologies in Southern California through a phased approach, as described below.

*Phase I*

Phase I began in 2004, and included an initial evaluation of conversion technology suppliers and the identification of local material recovery facilities (MRF) and TSs that could potentially host a conversion technology facility. Technology suppliers were ranked and screened based on the goal to maximize diversion of solid waste from landfills, and technical and economic capabilities to develop a facility in Southern California. The top ranking technologies included pyrolysis, gasification, plasma gasification and thermal depolymerization for thermal conversion; AD and gasification with fermentation to ethanol for biological/chemical conversion processes. The County proceeded with conversion technology supplier – MRF/TS partnerships to ensure a dedicated feedstock of preprocessed material that was otherwise destined for transformation and landfill disposal. Phase I resulted in the County's *Conversion Technology Evaluation Report*, which was adopted in August 2005. This report identified a preliminary short list of technology suppliers and MRF/TS sites, along with a framework for development of a demonstration facility at one of these sites.

*Phase II*

Phase II represents the County's continued efforts to facilitate development of a conversion technology demonstration facility in Southern California. In July 2006, the County contracted with Alternative Resources, Inc. (ARI) to further advance its efforts. Key Phase II services provided by the ARI team included:

- An independent evaluation and verification of the qualifications of selected technology suppliers and the capabilities of their conversion technologies
- An independent evaluation of candidate MRF/TS sites, to determine suitability for installation, integration, and operation of one of the technologies
- A review of permitting pathways
- Identification of funding opportunities and financing means
- Identification of potential county incentives (e.g., supporting benefits) to encourage facility development amongst potential project sponsors
- Negotiation activities to assist these parties in developing project teams and a demonstration project

These activities are described in detail in the *Conversion Technology Evaluation Report: Phase II Assessment* adopted in October 2007. Phase II also identified the four technology suppliers. Additionally four of the MRF/TS sites that were recommended in the Phase I study were carried forward in Phase II. Late in the Phase II process, the Rainbow Disposal Company, Inc. MRF, was also added to the project list. The MRF/TS sites include:

- Del Norte Regional Recycling and Transfer Station (Oxnard)
- Perris MRF/TS Riverside County (Perris)
- Rainbow Disposal Company, Inc. MRF (1) Orange County (Huntington Beach)

- Robert A. Nelson Transfer Station (Unincorporated Riverside County)
- MRF Riverside County (Unincorporated)

With only one exception, the MRF/TS sites have continued to express a willingness and ability to partner with a technology supplier and participate in the County's conversion technology demonstration project. The Del Norte Regional Recycling and Transfer Station (Oxnard) has not yet committed to participate in the County's project. As the only publicly owned MRF/TS under consideration, the Del Norte site requires a more formal and lengthier process to make a project commitment. The future of Oxnard's participation in the County's project is uncertain and appears unlikely.

On January 17, 2008, a Request for Offers was released to those technology suppliers and MRF/TS owners/operators vetted through the Phase II process. All shortlisted companies have submitted proposals and following a formal review process, the County will recommend one or more projects to the BOS for approval.

*Phase Ill/IV*

On April 20, 2010, the BOS approved Memoranda of Understanding for three conversion technology demonstration projects and awarded a contract for consultant services for Phase III (demonstration project) and Phase IV (commercial project). At that time, the BOS also instructed the Director of Public Works, in coordination with appropriate stakeholders, to assess the feasibility of developing a conversion technology facility at one or more County landfills; to identify other potentially suitable sites within the County of Los Angeles, and to report back to the BOS within 6 months.

Phase III will build upon the efforts begun in Phase II by seeing through to completion the permitting process, design, construction, and operation of one or more demonstration facilities. Phase IV will pursue the siting of commercial scale conversion technology facilities in Los Angeles County capable of managing a portion of the County's waste stream. Due to the time that has passed between Phases I and Phases IV, the County will also reevaluate the conversion technology marketplace to validate the four recommended technology suppliers in addition to investigating other technology suppliers. Phase IV also includes working with stakeholders, including cites, solid waste facility owners and operators, and conversion technology companies to encourage and facilitate the development of mutually beneficial projects within the County. In advance of Phase IV, four cities have already adopted resolutions expressing interest in partnering with the County: Calabasas; Glendale; Lancaster; and Long Beach; representatives from other cities have also expressed interest.

In October 2010, LACDPW submitted a preliminary siting assessment to the Board identifying potential project sites proposed by 11 municipalities and 9 private companies, and committed to providing the Board with a status report on the efforts every 6 months. Since that time, LACDPW has worked with interested stakeholders to evaluate additional possible project locations within the county.

On June 22, 2011, LACDPW released two Requests for Expressions of Interest to technology vendors and potential project financial partners. LACDPW received several responses. Companies that meet the County's list of minimum criteria will be included in a County database that will be used by LACDPW and will be made available to public and private project developers, specifically those who have expressed interest in developing a project and submitted a site to LACDPW for evaluation.

On September 25, 2012, the BOS approved a motion to work with key stakeholders to pursue and support the passage of legislation and regulations to encourage development of conversion technologies, including appropriate incentives for producing renewable energy, reducing landfill disposal, and producing low carbon fuels.

The County continues to work with stakeholders on a state and local level to identify the barriers to project development in California and to develop solutions to overcoming those barriers. The County is working with the Chief Executive Office to pursue legislation that would establish a more clearly defined

permitting pathway for conversion technologies in state statute. To that end, the County partnered with the California State Association of Counties (CSAC) to sponsor Senate Bill (SB) 498, which is anticipated to create a clear permitting pathway for these technologies while providing incentives to divert biomass from landfill disposal. This bill includes conversion technologies in the definition of biomass conversion. Adding conversion technologies to the biomass definition allows for cleaner and more efficient technologies to be used in processing these materials to create not just heat and electricity but also clean and renewable low-carbon fuels.

The County also chairs the Conversion Technology Working Group hosted by CSAC and the Task Force's ATAS. These groups monitor the development of conversion technology projects in California. For example, the County partnered with CR&R Waste and Recycling Services in the development of their AD project in Perris, California. As a part of its partnership with CR&R, the County assisted the project in receiving a $4.5 million grant from the Energy Commission under the State's Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Program commonly known as AB 118. The County continues to support CR&R's efforts to obtain additional grant funding, including successful efforts to obtain grants from the SCAQMD and CalRecycle. In addition, the County hired a consultant to assist in planning elements needed to develop a conversion technology project in the County.

In January 2015, the Los Angeles County BOS adopted a motion by Supervisor Mark Ridley-Thomas, instructing the Director of Public Works to provide semi-annual reports that include clear benchmarks for measuring the actual progress being made in establishing viable conversion technology projects. The most current report in response to this motion is for the period of February through July 2016. This report documents progress of three conversion technology projects, plus outreach, benchmarking, milestones, and next steps. The report shows that the County is on track to have in-County conversion technology capacity of 500 tons per day by the end of 2025, and in-County conversion technology capacity of 3,000 tons per day by 2035.

**Diversion Potential and Conversion Capability**

Conversion technologies have the capability of recovering recyclables, converting waste into intermediate fuel products (e.g., biogas, syngas, steam, biodiesel), efficiently using the fuel products onsite for power generation, and producing secondary material products. Conversion technologies have the potential to achieve significant diversion of MRF residue and post-recycled MSW from landfill disposal, ranging upwards from approximately 87 percent by weight of the waste received, provided reliable markets can be identified and developed for secondary products. Onsite power generation is currently a preferred alternative because of strong market demands for electricity, particularly from renewable energy sources.

Conversion technologies operate in 28 countries with varying environmental rules and regulations, including: Australia, Europe, Japan, South Korea, South Africa, and the United States. However, it is unclear at this time whether such secondary markets can be successfully developed in the United States.

According to CalRecycle, there are approximately a dozen AD facilities in operation in California and twice as many under construction or in the permitting process. These facilities primarily process green and/or food waste. There are currently no digesters that use MSW as a primary feedstock. Thus conversion technologies are part of the longer-term strategy for organics diversion.

**Competitiveness of Estimated Tipping Fees**

A precise or realistic figure for the tipping fees needed to support a conversion technology project in Los Angeles County is not yet known, but may be greater than current waste disposal costs in Los Angeles County. To support financing and successful project development and operation, there may be a need to "bridge" this economic gap, if any, until such time as market waste disposal fees equal those for conversion technologies. Many alternatives could be considered to help meet this need, including one or more of the following:

- Funding provided by the Los Angeles County Sanitation District (LACSD), consistent with the conditions placed on the Puente Hills Landfill CUP
- Funding provided by Browning-Ferris Industries, consistent with the conditions placed on the Sunshine Canyon CUP
- Funding provided by the cities in Los Angeles County and the County itself
- Development of public waste supply agreement (or private agreement with public "back stop") with supporting tip fees
- Increasing the amount of the project financing to provide surplus funds to "subsidize" initial tip fees being paid
- Instituting a ramped tipping fee (e.g., a structured annual increase that is kept in place until the prices charged cover the cost incurred, similar to the funding subsidy formulated by LACSD for the Mesquite Waste by Rail Project)
- Instituting a "green fee" to be paid by MRF/TS customers for waste processed at the conversion technology facility
- Eliminating the solid waste management fee (currently $0.86 per ton) for waste originating in Los Angeles County going to the conversion technology facility, to provide a reduced tip fee for waste delivered to the conversion technology facility
- Increasing the solid waste management fee (currently $0.86 per ton) imposed on each ton of solid waste being disposed to provide a dedicated funding source for promoting development of conversion facilities
- Providing tax incentives that may result in lower facility construction or operating costs
- Successful acquisition of state and federal grants to augment other funds as discussed above

The actual level of public and private support needed and alternatives to address needed support would require evaluation in the next step of this process, when firm, competitive offers from the project developers are made, and proposed tip fees and project-specific market conditions are known.

**Feasibility of Development**

According to the Roadmap to a Sustainable Waste Management Future (LACDPW, 2014), a few jurisdictions in California including San Jose, Sacramento, Perris, and Santa Barbara have projects in development; however, the path to project development is fraught with many challenges. Development hurdles for conversion technologies in California include land acquisition, and capital/labor costs, especially when compared to the current, relatively more efficient and thus inexpensive cost of landfill disposal; the lack of a clear permitting and regulatory pathway in California; a lack of diversion credit, renewable energy credit, or other incentives for the development of emerging technologies; and potential misconceptions regarding the performance of these technologies. The likely need for long-term contracts to ensure an adequate feedstock waste stream may also limit future flexibility of materials management efforts.

According to the County, currently, the largest obstacle is a permitting process that is more costly, time intensive, inconsistent, and confusing than necessary, largely due to out-of-date and even inaccurate language in State statute and regulations. The County believes that advancements in clean technology need to be reflected in State statute and regulations to create a level playing field for project developers while protecting public health and safety and the environment. The approval of SB 498, described previously, is a small but positive step forward in facilitating the development of conversion technologies in California.

Another hurdle for development, is the active network of well-funded organized opposition to the development of conversion facilities, which has fought and blocked development of facilities throughout the state. One of the common issues in opposition campaigns to development of conversion technologies is characterizing the conversion modality (i.e., plasma arc) as "incineration" to develop a public opposition to employment of facilities in local areas. Given the lack of experience in the United States with conversion technology facilities and the expense of building them, conversion technologies for solid waste carry higher uncertainty and risk. While conversion technology facilities can fulfill needs in the current waste recovery infrastructure, locking in the use of waste for energy production may create barriers to expanded recycling or composting in the future, thereby negating the greater environmental benefit from recycling or composting.

In addition to the production of locally generated renewable energy and green fuels, the use of conversion technologies in Southern California could, if proven feasible on a large scale, effectively enhance recycling and beneficial use of waste, reduce pollution such as GHG emissions, and reduce dependence on landfilling and imported and domestic fossil fuels. Conversion technologies have been used to manage solid waste in Europe, Israel, Japan, and other countries in Asia, but there are very few commercial operations in the United States.

#### 18.3.3.7 Waste Reduction and Alternative Technologies Conclusion

The Waste Reduction and Alternative Technologies Alternative alone cannot completely accomplish the primary purposes and objectives of the Proposed Project. This conclusion is based on many of the same reasons as previously described for the No Project Alternative, and includes the following:

- Alternative waste reduction technologies will be employed as required by AB 939 and County policy; however, their implementation (alone or in combination) does not completely offset the ultimate need for the expansion of CCL or the expansion of other landfill facilities. Los Angeles County residents and businesses generate approximately 21.5 million tons of materials per year, with approximately 60 percent being diverted through source reduction and recycling away from disposal. This results in over 8.6 million tons of trash left for disposal every year, a number that is expected to grow as a result of continued population and economic growth in the region. As the County notes in its' 2013 Annual Report, a multi-faceted approach is needed to meet the future disposal needs of the County. The County of Los Angeles recognizes the need to develop technically, economically, and environmentally feasible conversion alternatives, in combination with expanded landfill capacity, provided it can be done in a technically feasible and environmentally safe manner.
- Without additional landfill capacity, CCL would not maximize the value of the site or afford the County of Los Angeles the opportunity to use CCL's location as a potential expansion site to develop needed landfill disposal capacity.
- The positive environmental benefits of conversion technologies do not eliminate the need for additional landfill capacity. Existing facilities primarily process green and/or food waste. There are currently no digesters that use MSW as a primary feedstock. Thus conversion technologies are part of the longer-term strategy for organics diversion. Alternative waste reduction technologies are, however, capable of extending the operational capacity of landfills and are complementary activities to traditional MSW disposal.
- The two existing WTE facilities within the greater Los Angeles region have insufficient capacity to handle the existing 6,000 tons per day for the existing landfill, and cannot handle the 12,000 tons per day proposed for the Proposed Project. Thus, conversion technology alternatives would necessitate construction of one or more large, significant new WTE facilities in the region capable of handling up to 10,000 tons per day or more (10,000 tons per day is the daily average of the Proposed Project). The feasibility of siting such a facility is highly uncertain, as only three such facilities have been completed in California and none in the last 25 years.

## 18.3.4 Alternative E: Alternative New Site in Northern Los Angeles County

Alternative E assumes that Chiquita Canyon Landfill closes when the limited operational waiver ceases to be in effect. No landfill operations at CCL are included in consideration of Alternative E.

CEQA does not require the study of an alternative location to a project proposed by a private applicant. This Partially Recirculated Draft EIR, however, evaluates an alternative offsite location as potentially feasible, based on the Proposed Project's main objective to develop significant new disposal capacity within northern Los Angeles County. This alternative assumes the construction of a new landfill at an alternative site in northern Los Angeles County.

### 18.3.4.1 Environmental Analysis

A qualitative analysis of the potential environmental impacts of constructing an alternative new site in northern Los Angeles County is provided below.

**Land Use**

The existing project site is designated as a solid waste facility in the County's General Plan. In comparison, Alternative E would likely require an amendment to the Los Angeles County General Plan for the parcel(s) in which the landfill would be located, and would also require an amendment to the County's Siting Element. This inconsistency is considered a significant impact and greater in magnitude than that of the Proposed Project.

**Geology and Hydrogeology**

The impacts related to geology and soil resources would likely be greater for Alternative E as compared to the Proposed Project. However, as with the Proposed Project, it is assumed that the new landfill would be constructed to meet the minimum requirements of Section 20164(a) of Title 27 CCR. Similar to the Proposed Project, potential geotechnical constraints could be mitigated through proper engineering design and would be less than significant.

**Surface Water Drainage**

Under Alternative E, impacts related to surface water drainage and water quality would be greater than the Proposed Project. This alternative would involve constructing a new landfill, involving significant grading and excavation activity and alteration of topography and drainage patterns. Alternative E would require the preparation of an Industrial SWPPP to minimize erosion and other water quality impacts. With mitigation, hydrology and water quality impacts to surface and groundwater could be minimized to a less-than-significant level.

**Water Quality**

See Surface Water Drainage above

**Biological Resources**

Alternative E would likely result in greater impacts to biological resources compared to the Proposed Project. This alternative assumes that a new landfill would be constructed at an alternative location, resulting in a significant amount of new land disturbance compared to the Proposed Project. The magnitude of impacts would depend on the location of the new landfill. It is assumed that with mitigation, impacts could be reduced to less than significant.

**Cultural and Paleontological Resources**

Alternative E would likely result in greater impacts to cultural and paleontological resources compared to the Proposed Project. This alternative assumes that a new landfill would be constructed at an alternative location, resulting in a significant amount of new land disturbance compared to the

Proposed Project. The magnitude of impacts would depend on the location of the new landfill. It is assumed that with mitigation, impacts could be reduced to less than significant.

**Traffic and Transportation**

Alternative E would likely result in a greater number of project-related trips than the Proposed Project because it would be a new facility, as compared to an expansion of an existing operation. However, the impacts to transportation and traffic from Alternative E would require mitigation to minimize potentially significant impacts and would therefore likely be less than significant.

**Air Quality**

Under this alternative, the same operational characteristics are assumed for the Proposed Project; however, if the landfill were constructed outside of the South Coast Air Basin, Alternative E would avoid the significant air quality impact associated with the Proposed Project. However, project-related mobile source emissions would likely be greater than the Proposed Project as a result of the increased distances for haul truck trips. In this context, this alternative has the potential to generally increase air emissions as a result of new construction and longer travel distances. Furthermore, if Alternative E were constructed within the South Coast Air Basin, the project would result in a significant and unavoidable air quality impact similar to the Proposed Project.

**Greenhouse Gas Emissions and Climate Change**

Under Alternative E, the additional vehicle miles from the transport of the waste to the other landfills would result in additional GHG emissions from mobile sources. The impacts to global climate change from Alternative C would likely be greater than those of the Proposed Project, and are potentially significant and unavoidable.

**Noise**

Alternative E has the potential to impact noise sensitive receptors, depending on where the facility is located. It is assumed that the landfill would be located in a relatively remote area so as to avoid issues associated with potential sensitive receptors; therefore, the noise impact is assumed to be similar to the Proposed Project, and less than significant.

**Public Services and Utilities**

Alternative E would operate using similar infrastructure as the Proposed Project that supports the landfill operation, including water, wastewater, and electrical and new infrastructure would be required as part of the development of a new landfill. This could result in impacts associated with the construction of new infrastructure that would be greater than that of the Proposed Project. However, similar to the Proposed Project, Alternative E would not create a significant new demand for public services. Impacts would be less-than-significant.

**Visual Resources**

Development and operation of a new landfill at an alternative location would likely result in greater visual impacts than the Proposed Project. In contrast to the Proposed Project, where the existing landfill is an established and accepted part of the landscape, Alternative E would result in entirely new land disturbance, which would likely significantly alter the visual landscape in an area where currently no landfill exists. Additionally, depending on the specific site location more visual disturbance could occur associated with infrastructure improvements that may be necessary to serve the new landfill, such as roadways and utilities. Alternative E would also introduce additional nighttime lighting likely where none currently exists.

**Environmental Justice and Socioeconomics**

Alternative E has the potential to result in environmental justice and socioeconomics impacts, depending on where the facility is located. It is assumed that the landfill would be located in a relatively remote area so as to avoid environmental justice and socioeconomics impacts. Therefore, the impact is assumed to be similar to the Proposed Project, and less than significant.

### 18.3.4.2 Feasibility of Developing Alternative New Site in Northern Los Angeles County

For an alternative location for the Proposed Project to be considered feasible, the site would have to be suitable for landfill development, and meet the detailed siting and design criteria established in Title 27 CCR. These criteria would preclude any property that would not meet the Title 27 landfill siting requirements. In general, the State of California siting regulations (which are based on the federal Subtitle D regulations) restrict landfills from locating in areas near runways, within 100-year floodplains, in unstable terrain, in wetlands, or in active fault zones. Site feasibility is further determined by the landfill operator's ability to acquire, control, or otherwise have access to suitable properties. The applicant does not own or control properties in the vicinity of the Proposed Project location suitable for landfill development—the applicant does not own any other property in the general vicinity of the CCL facility.

The specific requirements for development of a landfill in the northern area of Los Angeles include:

- Identifying available lands which are of sufficient size—at least 500 acres—to accommodate a landfill disposal facility, including ancillary functions such as access roads, waste receiving facilities, gatehouse, scales, LFG management and LFGTE facilities, soil stockpile areas, and potential borrow areas from which to utilize soils for operations and closure purposes. A section of land (640 acres) would generally be a reasonably-sized area to consider for a landfill site which could accommodate CCL operations. The primary screening level criteria for this element of the alternative new landfill is the application of federal and state MSW landfill siting criteria, first established in the federal Subtitle D regulations promulgated in 1991 and effective on October 9, 1993 (40 *Code of Federal Regulations* Part 268). The California Environmental Protection Agency has an approved state implementation program for administering the Subtitle D requirements within California, found in Title 27 CCR, Chapter 3. The siting criteria include that new or expanded landfills will be located where site characteristics provide adequate separation between nonhazardous solid wastes and waters of the state; all new landfills must be sited, designed, constructed, and operated to ensure that wastes will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater; new landfills must be located where soil characteristics, distance from waste to groundwater, will ensure no impairment of beneficial uses of surface water or of groundwater; new landfills and lateral expansions of landfills that are located within 10,000 feet of any airport runway end used by turbojet aircraft, or within 5,000 feet of any airport runway end used by only piston-type aircraft, must demonstrate that the units are designed and operated so that the landfill does not pose a bird hazard to aircraft; new landfills and expansions of existing landfills shall not be located on a known Holocene fault; new landfills and expansions of existing landfills shall not be located in areas of rapid geologic change.
- Identifying specific sites within northern Los Angeles County based on suitability of access, ability to provide electrical power, and other infrastructure needs, including the water supply. Transportation infrastructure considerations and challenges must be addressed for a new site to be viable.
- Conducting hydraulic and hydrologic modeling of the proposed landfill site and the adjacent watershed to determine a landfill project's potential to exacerbate existing flooding problems by increasing the extent, depth, and duration of surface water inundation. Any such project-related flooding impacts would require the development and operation of flood control facilities to protect onsite and adjacent lands and properties.

- Undertaking detailed site-specific geologic and hydrogeologic investigations on the proposed site once it is identified and placed under option or other ownership interest for purposes of performing due diligence studies on the suitability of the parcel(s) for solid waste landfill purposes. The due diligence would include geologic boring and trenching to determine the suitability of soils, both for construction purposes but also with respect to the overall stability of soils and slopes in and around the parcel(s); establishment of a network of groundwater monitoring wells, monitored for at least 4 to 6 quarters, to determine water quality and hydrogeologic characteristics of the site, depth and occurrence of groundwater; and the surface water features and hydrology of the site.
- Undertaking field-level reconnaissance and surveys for threatened, listed, and endangered plant and animal species under the state and federal endangered species acts. As with any potential site, there is a potential for several species and habitat areas to be located in a given area. Detailed site-specific investigations for species and habitat will be necessary. In addition, the reconnaissance and surveys would also include evaluation of critical and other protected habitat for threatened and endangered species.
- Filing of an application for a designation in the CIWMP and General Plan, together with any related zoning requirements, and preparation of at least a program-level EIR for purposes of complying with CEQA for these discretionary decisions by the County of Los Angeles. The designation in the CIWMP requires a submission of the known details of the proposed facility to the Task Force for review and comment by the Task Force. (See, *California Public Resources Code* Section 50001). An applicant may wish to proceed with a CIWMP designation and General Plan Amendment to ensure that the identified site, after the due diligence period of over a year, is acceptable as a designated site in CIWMP and the General Plan. The public may also posit initiatives under the initiative power to either designate or preclude sites from being considered in the CIWMP and the General Plan. The process of securing the site within the CIWMP and the General Plan, together with the required CEQA review at a program-level EIR, can take between 24 to 36 months even under favorable conditions, without protracted opposition, legal challenges to various stages of the process, and potentially EIR-related litigation. There are currently no potential landfill sites in northern Los Angeles County identified in the CIWMP.
- Applying for a CUP from Los Angeles County to establish a solid waste landfill facility. The County would be the lead agency under CEQA, and as such, must require preparation of a project-level EIR, just as is the current case with the Proposed Project EIR under review, to evaluate the proposed action. The CUP and EIR process can take from 4 to 6 years, or longer, as has been documented in other areas of the state addressing new or expanded landfill applications. As an example, the applicant for a lateral expansion of the Potrero Hills Landfill in Solano County was in the CUP and EIR process for over 12 years. Mandamus litigation challenging the final permit for the Potrero Hills project was decided in favor of the applicant in May, 2014 by the state court of appeal. The Eagle Mountain Landfill was initially commenced in 1989, received final state permits in 1999, but was set back by continued litigation challenging a Bureau of Land Management land exchange and land transfer to the applicant. The Eagle Mountain project was in the permitting process with associated litigation for over 20 years and the project is now no longer viable. Its sponsor entered bankruptcy in 2011. Every site and circumstance is unique, but for planning and discussion purposes, a 4- to 6-year timeframe is likely highly optimistic and potentially not realistic. The EIR may be challenged in court once certified as adequate and in compliance with CEQA, by other permitting agencies, as discussed below. Experience in California permitting and environmental review indicates that the 4- to 6-year period may be considerably longer if there is litigation activity challenging the EIR and the lead agency approvals.

- Preparing a joint technical document (JTD), which is a multi-disciplinary technical document which serves as a permit application and background technical document for several agency permits. The JTD describes the waste disposal plan, the access routes, and monitoring plans, together with descriptions of the characteristics of the site in all technical aspects including geology, hydrogeology, hydrology, air quality, water quality, and site suitability. The JTD also demonstrates that the landfill site meets all of the siting and design/construction/operational standards, prescriptive and performance, embodied in the applicable regulations of the SCAQMD, the Los Angeles Regional Water Quality Control Board (RWQCB), the LEA, and CalRecycle.
- Applying for and obtaining a WDR permit from RWQCB.
- Applying for and obtaining an SWFP from the LEA, to also be concurred in by CalRecycle.
- Applying for and obtaining an authority to construct and permit to operate from the SCAQMD.
- Applying for and obtaining other permits, which may be required, including without limitation, a United States Corps of Engineers Section 404 permit; Federal Endangered Species Act permit; Clean Water Act Section 401 certification; and Streambed Alteration Agreement from the California Department of Fish and Wildlife.

Experience indicates that the process of searching for suitable sites, negotiating options or purchase agreements with one or more landowners, and completing due diligence actions required will take a minimum of 24 to 48 months, under favorable conditions.

The time for completing the JTD and obtaining all required environmental agency permits to construct and operate a new landfill would likely take as long as 1 to 2 additional year(s) after the project-level EIR is certified by the lead agency and a land use/CUP is obtained, assuming no litigation that delays the certification of the EIR or delays the obtaining of the permits from various agencies. The JTD is the essential prerequisite to obtaining WDRs and an SWFP. History involving landfill land use applications throughout the state demonstrates that litigation is a highly probable and realistic obstacle and occurs in most landfill permitting proceedings. Each of the agencies has an independent statutory and regulatory basis for issuance of the permits involved, creating an independent opportunity for litigation challenges.

The California statutory and regulatory requirements for development of new landfills embodies a process which results in the planning and permitting for a new landfill easily taking up to 12 years or more to complete. The history of permitting landfills in California in the last 25 years demonstrates that few are actually approved, let alone built and operated. Since 1985, there have been five new landfills permitted in California on non-tribal lands (Potrero Hills Landfill in Solano County [1986]; Frank R. Bowerman Landfill in Orange County [1991]; Keller Canyon Landfill in Contra Costa County [1992]; Mesquite Regional Landfill in Imperial County [1999]; and Eagle Mountain Landfill in Riverside County [1999]). Of those five, three have been built (Potrero, Bowerman, and Keller Canyon). Mesquite, which had been scheduled to be placed into service to facilitate WBR from Los Angeles County, is not being developed at this time. The fifth site, Eagle Mountain Landfill, was blocked by litigation after nearly 20 years in the permitting process and the project is now no longer viable.

Experience locally and throughout the state demonstrates that siting and permitting a solid waste landfill is a time consuming, expensive proposition that can easily take between 10 to 12 years or more, without guarantee of a successful or even partially successful result.

#### 18.3.4.3 Alternative New Site Conclusion

The Alternative New Site in Northern Los Angeles County neither accomplishes the primary purposes and objectives of the Proposed Project nor avoids or substantially lessens the significant impacts associated with the Proposed Project, based on the following considerations:

- An Alternative New Site Alternative would take 10 to 15 years to ultimately permit and develop, but there is no certainty that such a site would be approved. Assured waste disposal capacity is required now and in the foreseeable future.
- An Alternative New Site Alternative would not achieve most of the basic project objectives, such as expanding CCL with additional capacity and resource recovery operations and maximizing the value of the site.
- An Alternative New Site Alternative would not provide cost-effective disposal capacity through continued operation and development of the existing CCL facility; nor prevent premature closure of the landfill with underutilized remaining permitted airspace capacity.
- An Alternative New Site Alternative would not continue to provide landfill waste diversion programs that are relied upon by many local cities and communities in achieving state-mandated goals.
- An Alternative New Site Alternative would result in potentially more environmental impacts associated with constructing an entirely new facility, including potential impacts to land use, biological resources, cultural resources, air quality, and GHGs and climate change.

## 18.3.5 Alternative F: Rail Haul Transport to Out-of-County Landfills

Alternative F assumes that Chiquita Canyon Landfill closes when the limited operational waiver ceases to be in effect. No landfill operations at CCL are included in consideration of Alternative F.

LACDPW and LACSD have continued to pursue the development of out-of-county disposal through waste-by-rail (WBR) systems as a partial source of long-term disposal capacity for the greater metropolitan Los Angeles regional system.

The WBR system is comprised of a remote intermodal yard and disposal facility, local MRFs/TSs, a local intermodal rail yard, and rail transportation. The starting point of the WBR system for Los Angeles County is the Puente Hills Intermodal Facility (PHIMF), located near the Puente Hills MRF, approximately 55 miles southeast of CCL in the City of Industry. Residual waste from MRFs and TSs located throughout the County will be loaded onto rail carts at the PHIMF, and then transported via rail to the Mesquite Regional Landfill (MRL) for disposal. There are currently no intermodal yards in the Santa Clarita Valley with rail haul capabilities nor are there rail lines connecting the Santa Clarita Valley to the MRL site. The MRL, located approximately 210 miles from Los Angeles, is the only out-of-county landfill with rail access that is currently available for use by jurisdictions in Los Angeles County. The landfill is located in Imperial County and owned and operated by the LACSD.

The Sanitation Districts have completed planning and development of all of the WBR system components except for the local intermodal facility which is currently under construction. Upon completion, the PHIMF will facilitate intermodal transfer of containers up to two trains per day, or approximately 8,000 tons per day of MSW.

### 18.3.5.1 Environmental Analysis

A qualitative analysis of the anticipated environmental impacts associated with the Rail Hail Transport to Out-of-County Landfills Tonnage Alternative is provided below.

**Land Use**

Alternative F would be implemented at existing facilities, including the PHIMF and MRL, and along an existing rail line. There would be no change to the existing land use and therefore, no impact to land use would occur.

**Geology and Hydrogeology**

Alternative F would be implemented at existing facilities, including the PHIMF and MRL, and along an existing rail line. It is assumed that operation of these facilities would be in compliance with regulatory standards and policies related to geology and hydrogeology. Impacts would be less than significant.

**Surface Water Drainage**

See Geology and Hydrogeology above

**Water Quality**

See Geology and Hydrogeology above

**Biological Resources**

Alternative F could result in potential impacts to biological resources due to an increase in rail activity. Impacts could be potentially significant. However, the impacts to biology would require mitigation to minimize potentially significant impacts and therefore would likely be mitigated to less than significance.

**Cultural and Paleontological Resources**

Alternative F would be implemented at existing facilities, including the PHIMF and MRL, and along an existing rail line. No new construction is assumed and operation of these facilities is assumed to be in compliance with regulatory standards and policies related to cultural and paleontological resource protection. Impacts would be less than significant.

**Traffic and Transportation**

Potential traffic impacts of implementing Alternative F would depend on the origin of the waste being transported, the number of trucks needed, and the distance of the truck travel. Impacts could be potentially significant. However, the impacts to transportation and traffic would require mitigation to minimize potentially significant impacts and therefore would likely be mitigated to less than significance.

**Air Quality**

Potential air quality impacts related to Alternative F would depend on the origin of the waste being transported, the number of trucks needed, and the distance of the truck travel. Like the Proposed Project, this alternative would result in impacts to the South Coast Air Basin and could be potentially significant and unavoidable. Project-related mobile source emissions could be greater than the Proposed Project as a result of an increased distances for haul truck trips, as well as additional emissions associated with rail traffic. In this context, this alternative has the potential to generally increase air emissions as a result of longer travel distances. Impacts to air quality from Alternative F would require mitigation to minimize potentially significant impacts.

**Greenhouse Gas Emissions and Climate Change**

See Air Quality above

**Noise**

Alternative F would be implemented at existing facilities, including the PHIMF and MRL, and along an existing rail line. No new construction is assumed and operation of these facilities is assumed to be in compliance with regulatory standards and policies related to noise. However, Alternative F has the potential to impact noise sensitive receptors due to additional truck travel to the site and an increase in rail activity. It is assumed that noise impacts could be mitigated to less than significance.

**Public Services and Utilities**

Similar to the Proposed Project, Alternative F would not create a significant new demand for public services, including law enforcement, fire protection, or educational services. For this reason, Alternative F would result in no impact to public services.

**Visual Resources**

Alternative F would be implemented at existing facilities, including the PHIMF and MRL, and along an existing rail line. No new construction is assumed. Similar to the Proposed Project, Alternative F would occur at facilities which are an established and accepted part of the landscape. Impacts to visual resources would be less than significant.

**Environmental Justice and Socioeconomics**

Alternative F would be implemented at existing facilities, including the PHIMF and MRL, and along an existing rail line. No new construction is assumed. Alternative F would result in additional truck and rail traffic, but is not assumed to disproportionally affect a minority or low income population. Therefore, the impact is assumed to be similar to the Proposed Project, and less than significant.

#### 18.3.5.2 Feasibility of Implementing Rail Haul Transport to Out-of-County Landfills

The operation of the MRL and WBR is entirely dependent on the availability of in-county and near-county disposal capacity, diversion from landfills, and the cost of disposal. When the MRL/WBR disposal capacity is needed and when the tipping fees make MRL/WBR economically viable, then the system may begin operation. Tipping fees are estimated at approximately $80 per ton (compared to approximately $43 to $53 per ton for landfill disposal), currently making it too expensive to use. For the purposes of the disposal analysis contained in the *2013 Annual Report*, the WBR system was assumed to begin its operation in 2018. However, it may be significantly longer before this alternative becomes economically feasible to use.

#### 18.3.5.3 Rail Haul Transport to Out-of-County Landfills Conclusion

The Rail Haul Transport to Out-of-County Landfills Alternative neither avoids nor substantially lessens the effects associated with air quality, or other potential environmental impacts, when compared to the Proposed Project. This alternative also, only partially meets the objectives of the Proposed Project. This determination is based on the following:

- The MRL is a remote desert landfill, located over 200 miles from CCL. Currently there is no TS in northern Los Angeles County and no rail loading facility to accommodate the consolidation and transportation of waste. Furthermore, population projections have indicated that Los Angeles County and the area surrounding Chiquita Canyon will continue to grow and generate more refuse in the future. The waste generated in the Chiquita Canyon waste shed would be transported over a much farther distance for disposal, thus potentially resulting in increased air emissions over those anticipated for the Proposed Project.
- Waste transport by train also has impacts on noise levels, vibration, traffic, and air quality, unlike those associated with truck transport.
- The WBR system and MRL is also not yet operational and would begin operation only when found to be technically and economically feasible. As a best case, the *2013 Annual Report,* the WBR system was assumed to begin its operation in 2018, although this date is uncertain. Thus WBR would not provide the short-term disposal capacity needs of the County.
- The Rail Haul Transport to Out-of-County Landfills Alternative would be subject to out-of-county host fees and taxes, further contributing to the uncertainty of the economic competiveness of this alternative.

- Consideration of WBR to a remote location would not secure landfill capacity in proximity to population centers served by CCL; would not expand CCL within its existing leasehold boundaries; and would not maximize the utilization of available airspace within the CCL site property holdings and realize the value of the property to its fullest potential. The applicant does not own or control a site served by a rail haul or intermodal capability.

# 18.4 Comparison of Alternatives

A comparative summary of the significance of potential environmental impacts compared to Proposed Project is provided in Table 18-2. A detailed discussion of the potential impacts associated with each alternative was provided in Section 18.3.

None of the project alternatives would both meet most of the Proposed Project objectives and avoid, or substantially lessen, the significant effects of the Proposed Project as required by Section 15126(d) of the *CEQA Guidelines*. It can be concluded that only the No Project Alternative (Alternative A) would avoid the landform alteration effects of the Proposed Project. However, the No Project Alternative shifts daily operational impacts of landfilling operations to other sites, and recognizes that additional capacity has to be created in the system to handle the waste that would have otherwise gone to CCL. In addition, the transportation impacts and associated GHG impacts of transportation on one or more distant landfills have to be considered as potentially significant impacts of the No Project Alternative. The No Project Alternative does not meet the important objectives of the Proposed Project, the development of substantial additional disposal capacity to serve the region's and Los Angeles County's needs.

The onsite alternatives (Alternatives B and C) neither avoid nor substantially lessen the potentially significant environmental impacts associated with the Proposed Project. Potential impacts associated with the onsite alternatives have been shown to be consistent with those of the Proposed Project for all resource areas. Because there would be no significant difference in the way in which the onsite alternatives would be constructed or operated, impacts would be generally the same regardless of whether 12,000 tons per day are permitted or whether 6,000 to 9,000 tons per day are permitted.

The Waste Reduction and Alternative Technologies Alternative (Alternative D) provides several worthwhile and important elements of source reduction and diversion to reduce overall contributions to the waste stream, as well as providing alternative methods of disposal. While the concepts are valued, not all have been demonstrated to be feasible for a variety of reasons. In the context of Los Angeles County, which is projected to see an increase in landfill capacity demand in spite of aggressive recycling and source reduction programs, this alternative cannot be considered as a feasible means to eliminate the need for the Proposed Project.

The development of a new landfill in the northern Los Angeles County area (Alternative E) has several important steps which must be undertaken, that even under the most favorable conditions as noted above will take on the order of 12 years or longer. Thus, although an Alternative New Site in Northern Los Angeles County may appear to some to be an attractive alternative, the actual process of locating, identifying, and ultimately permitting such a project is a very expensive, time-consuming process that cannot be achieved within the critical timeframe necessary for development of additional landfill disposal capacity, the primary objective of the Proposed Project. As such, a new site in northern Los Angeles County is simply not a feasible alternative to the Proposed Project even under the most favorable circumstances.

The MRL and WBR system (Alternative F) will ultimately be an important component of the County's multi-faceted waste management system. However, at this time, WBR is not yet operational and would only begin operation when found to be technically and economically feasible. The timeline for operation is uncertain. Much like the Alternative New Site in Northern Los Angeles County, this alternative would not provide the short-term disposal capacity needs of the County.

Table 18-2. Significance of Potential Environmental Impacts Compared to Proposed Project

*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Environmental Resource Area | Proposed Project | Alternative A - No Project | Alternative B - Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage | Alternative C - 50% Reduction in Additional Daily Waste Disposal Tonnage | Alternative D - Waste Reduction and Alternative Technologies | Alternative E - Alternative New Site in Northern Los Angeles County | Alternative F - Rail Haul Transport to Out-of-County Landfills |
|---|---|---|---|---|---|---|---|
| Land Use | NI | Less (NI) | Similar (NI) | Similar (NI) | Greater (LTS) | Greater (PS) | Similar (NI) |
| Geology and Hydrogeology | LTS | Less (LTS) | Similar (LTS) | Similar (LTS) | Similar (LTS) | Greater (LTS) | Similar (LTS) |
| Surface Water Drainage | LTS | Less (LTS) | Similar (LTS) | Similar (LTS) | Similar (LTS) | Greater (LTS) | Similar (LTS) |
| Water Quality | LTS | Less (LTS) | Similar (LTS) | Similar (LTS) | Similar (LTS) | Greater (LTS) | Similar (LTS) |
| Biological Resources | LTS | Less (LTS) | Less (LTS) | Less (LTS) | Less (LTS) | Greater (LTS) | Similar (LTS) |
| Cultural and Paleontological Resources | LTS | Less (LTS) | Less (LTS) | Less (LTS) | Less (LTS) | Greater (LTS) | Similar (LTS) |
| Traffic and Transportation | LTS | Greater (PS) | Less (LTS) | Less (LTS) | Less (LTS) | Greater (LTS) | Greater (LTS) |
| Air Quality | S/U | Similar (S/U) | Less (S/U) | Less (S/U) | Less (LTS) | Greater (S/U) | Similar (S/U) |
| Greenhouse Gas Emissions and Climate Change | S/U Post 2020 | Similar (S/U) | Less (S/U) | Less (S/U) | Less (LTS) | Greater (S/U) | Similar (S/U) |
| Noise | LTS | Less (LTS) | Less (LTS) | Less (LTS) | Less (LTS) | Similar (LTS) | Similar (LTS) |
| Public Services and Utilities | NI | Similar (NI) | Similar (NI) | Similar (NI) | Greater (LTS) | Greater (LTS) | Similar (NI) |
| Visual Resources | LTS | Less (NI) | Less (LTS) | Less (LTS) | Similar (LTS) | Greater (LTS) | Less (LTS) |
| Environmental Justice and Socioeconomics | LTS | Less (NI) | Similar (LTS) | Similar (LTS) | Similar (LTS) | Similar (LTS) | Similar (LTS) |
| Meet Project Objectives? | Yes | No | Partially | Partially | Partially | No | Partially |
| Reduce Significant and Unavoidable Impacts? | No | No | No | No | Yes[1] | No | No |

Notes: NI= No Impact; PS= Potentially Significant, LTS= Less than Significant, S/U= Significant and Unavoidable

[1] Alternative D, by itself, may reduce the potentially significant and unavoidable impacts associated with the Proposed Project. However, this alternative does not eliminate the need for additional landfill capacity and would be co-located and operated in conjunction with MSW disposal. Therefore, impacts would be potentially significant and unavoidable.

## 18.5 Environmentally Superior Alternative

From among the alternatives evaluated, CEQA requires that a Draft EIR identify the environmentally superior alternative. Based on the discussion of the various alternatives, the environmentally superior alternative is Alternative A, the No Project Alternative. Under the No Project Alternative, the landfill operation would continue according to existing conditions only until July 31, 2017. While Alternative A could shift many of the daily operation impacts from one facility to another, the No Project Alternative involves no construction and would not directly involve any development or the disturbance of resources at CCL, unlike Alternatives B and C. Therefore, the No Project Alternative would be the Environmentally Superior Alternative, although it would not achieve the Project objectives.

*CEQA Guidelines* Section 15126.6(e)(2) states, "If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." Based on the qualitative analysis of the remaining alternatives, it anticipated that the Waste Reduction and Alternative Technologies Alternative would have lower overall adverse environmental effects compared to the rest of the build alternatives.

AD facilities associated with this alternative would likely be co-located at existing or new permitted solid waste facilities or as stand-alone AD facilities in areas zoned for industrial or solid waste handling activities, thus minimizing potential impacts. The Statewide Anaerobic Digester Facilities for the Treatment of Municipal Organic Solid Waste Draft Program Environmental Impact Report (CalRecycle, 2011) determined that all of the potential environmental impacts from construction of an AD facility could be mitigated to a less-than significant level. The Programmatic EIR also noted that the development of AD facilities would have substantial benefits in regards to diverting organic material from landfills and reducing GHG emissions in comparison to existing practices.

Alternative waste reduction technologies such as AD facilities will be employed as required by AB 939 and County policy; however, their implementation (alone or in combination) does not offset the need for the expansion of CCL or the expansion of other landfill facilities. The Waste Reduction and Alternative Technologies Alternative only partially meets the objectives of the Proposed Project, and, as the County notes in its' 2014 Annual Report, a multi-faceted approach is needed to meet the future disposal needs of the County. Because the Waste Reduction and Alternative Technologies Alternative does not eliminate the need for additional landfill capacity, the Alternative, in conjunction with MSW disposal, may reduce but will not eliminate potentially significant impacts associated with the Proposed Project. Alternative waste reduction technologies are, however, capable of extending the operational capacity of landfills and are complementary activities to traditional MSW disposal.

## 18.6 References

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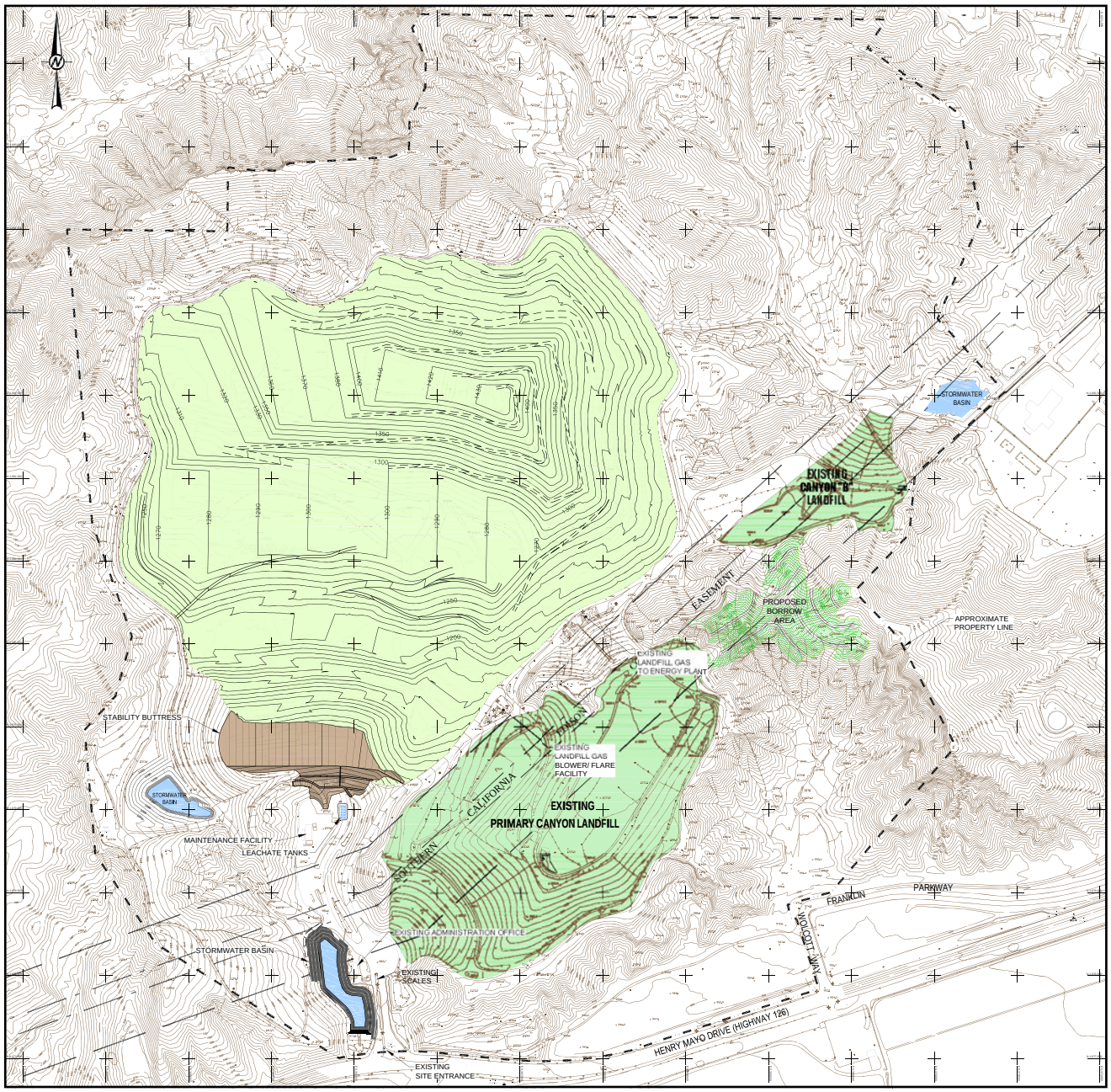
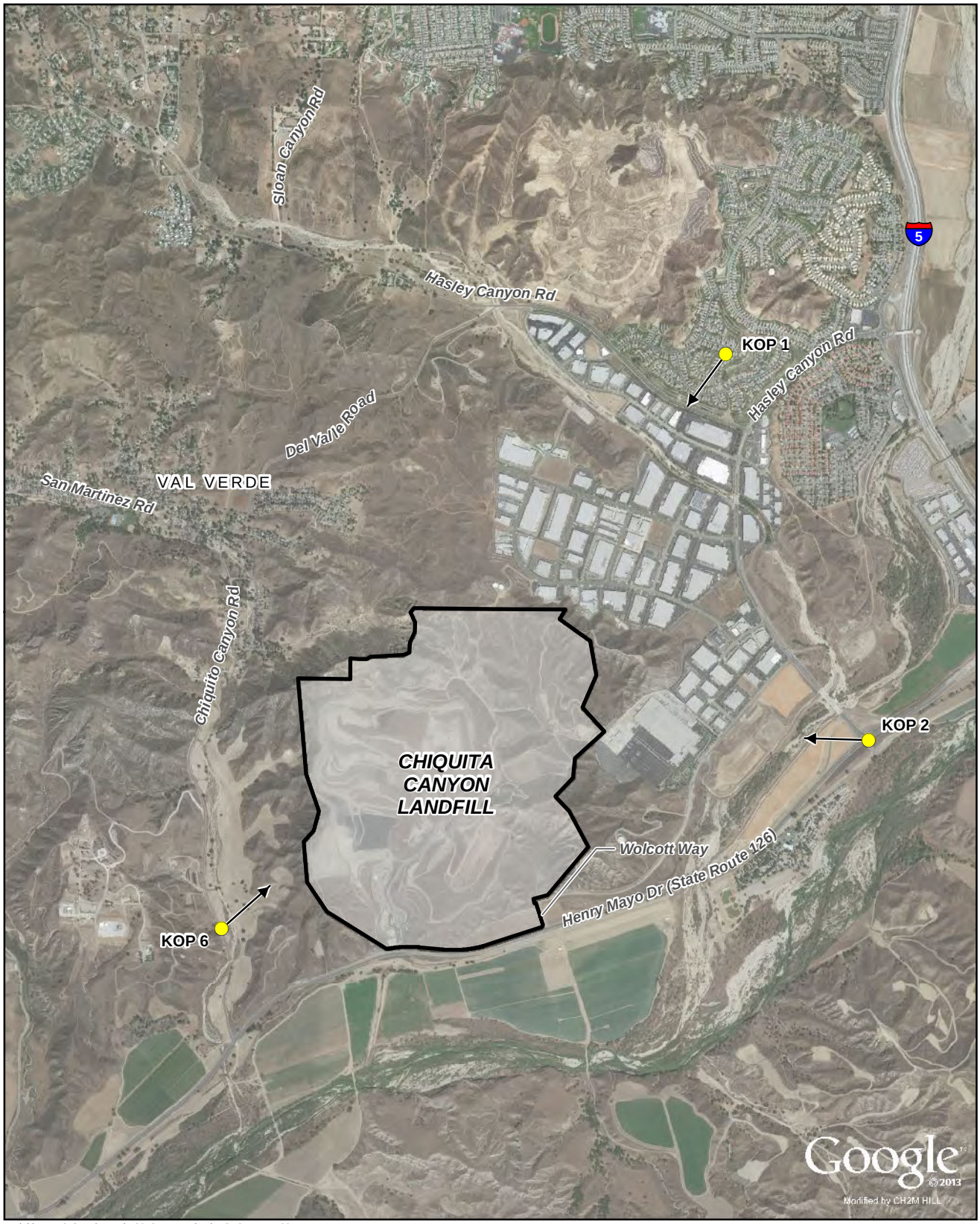



**Figure 18-1.**
**Final Grading Plan**
**Alternative A: No Project Alternative**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Cooper Aerial Surveys Co., Tuscon, AZ
Date of photography: April 3, 2016

Source: Golder Associates, 2016




Aerial image © Google Earth, 2013. Annotation by CH2M HILL, 2015.

***LEGEND***

- KOP
- Photo Direction
- Project Boundary

**Figure 18-2.**
**Photo Viewpoint Locations**
*Chiquita Canyon Landfill*
*Master Plan Revision*

a. KOP 1 – Existing view of the Proposed Project site looking southwest from a relatively new single family subdivision located in the elevated area to the north and east of Hasley Canyon Road, along Alton Way.

b. KOP 1 – Simulated view of the Proposed Project site looking southwest from the subdivision that depicts the view as it would appear at the end of the operational phase.

c. KOP 1 – Simulated view of Alternative A: No Project Alternative looking southwest from the subdivision that depicts the view as it would appear at the end of the operational phase.

**Figure 18-3.**
**KOP 1: Residential Area North and East of Hasley Canyon Road**
**Comparison of Proposed Project and Alternative A from KOP 1**
*Chiquita Canyon Landfill*
*Master Plan Revision*

a. KOP 2 – Existing view of the Proposed Project site looking west from SR-126 in the vicinity of Commerce Center Drive.

b. KOP 2 – Simulated view of the Proposed Project site looking west from SR-126 depicting the view as it would appear at the end of the operational phase.

c. KOP 2 – Simulated view of Alternative A: No Project Alternative looking west from SR-126 depicting the view as it would appear at the end of the operational phase.

**Figure 18-4.**
**KOP 2: Intersection of SR-126 and Commerce Center Drive**
**Comparison of Proposed Project and Alternative A from KOP 1**
*Chiquita Canyon Landfill*
*Master Plan Revision*

a. KOP 6 – Existing view of the Proposed Project site looking northeast from Chiquito Canyon Road.

b. KOP 6 – Simulated view of the Proposed Project site looking northeast from Chiquito Canyon Road depicting the view as it would appear at the end of the operational phase.

c. KOP 6 – Simulated view of Alternative A: No Project Alternative looking northeast from Chiquito Canyon Road depicting the view as it would appear at the end of the operational phase.

**Figure 18-5.**
**KOP 6: Chiquito Canyon Road Comparison of Proposed Project and Alternative A from KOP 1**
*Chiquita Canyon Landfill Master Plan Revision*

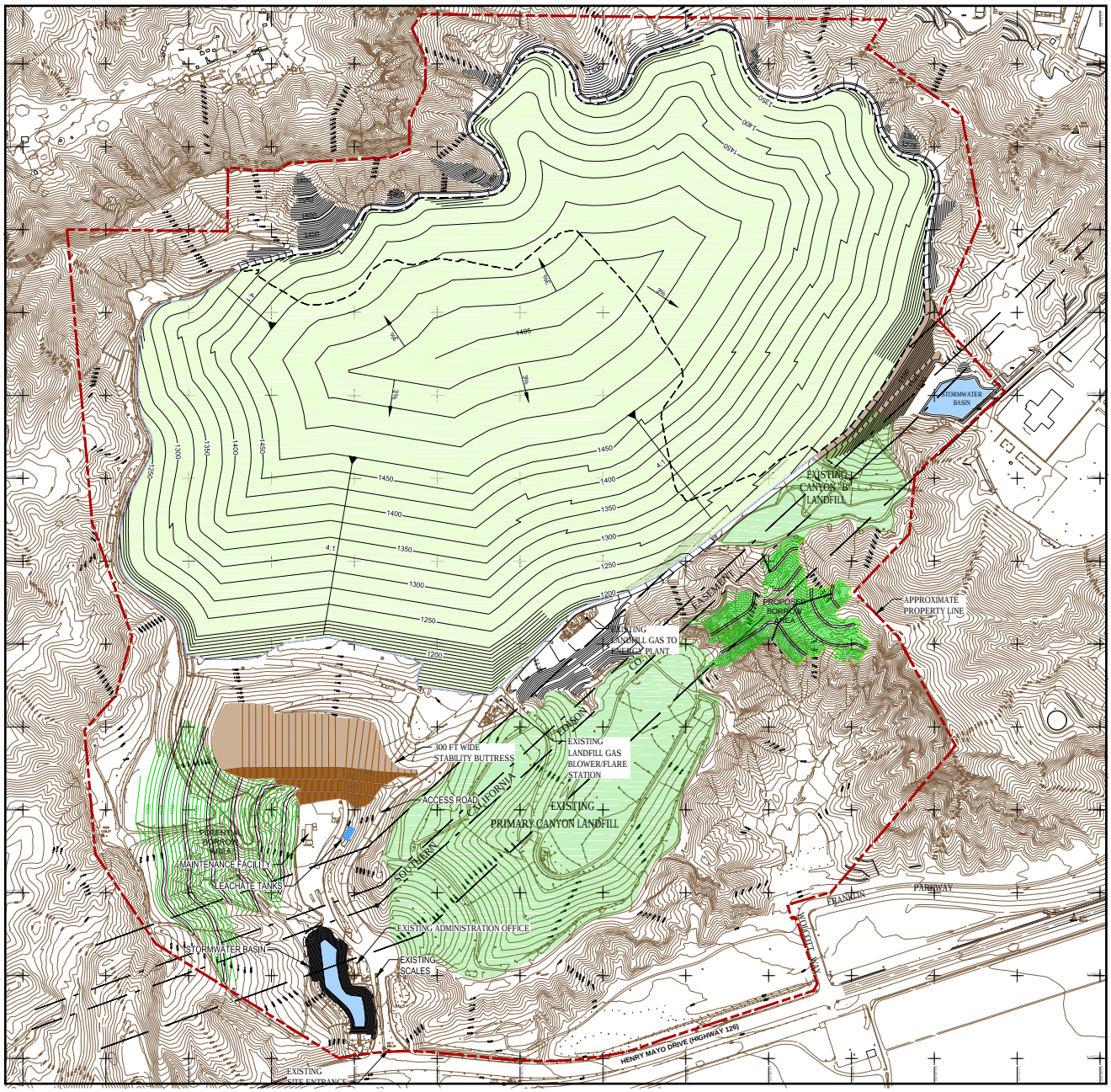



**Figure 18-6.**
**Proposed Site Plan**
**Alternative B: Continued Operation (Status Quo) with 0% Increase in Daily Waste Disposal Tonnage**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Cooper Aerial Surveys Co., Tuscon, AZ
Date of photography: March 17, 2015

Source: Golder Associates, 2015

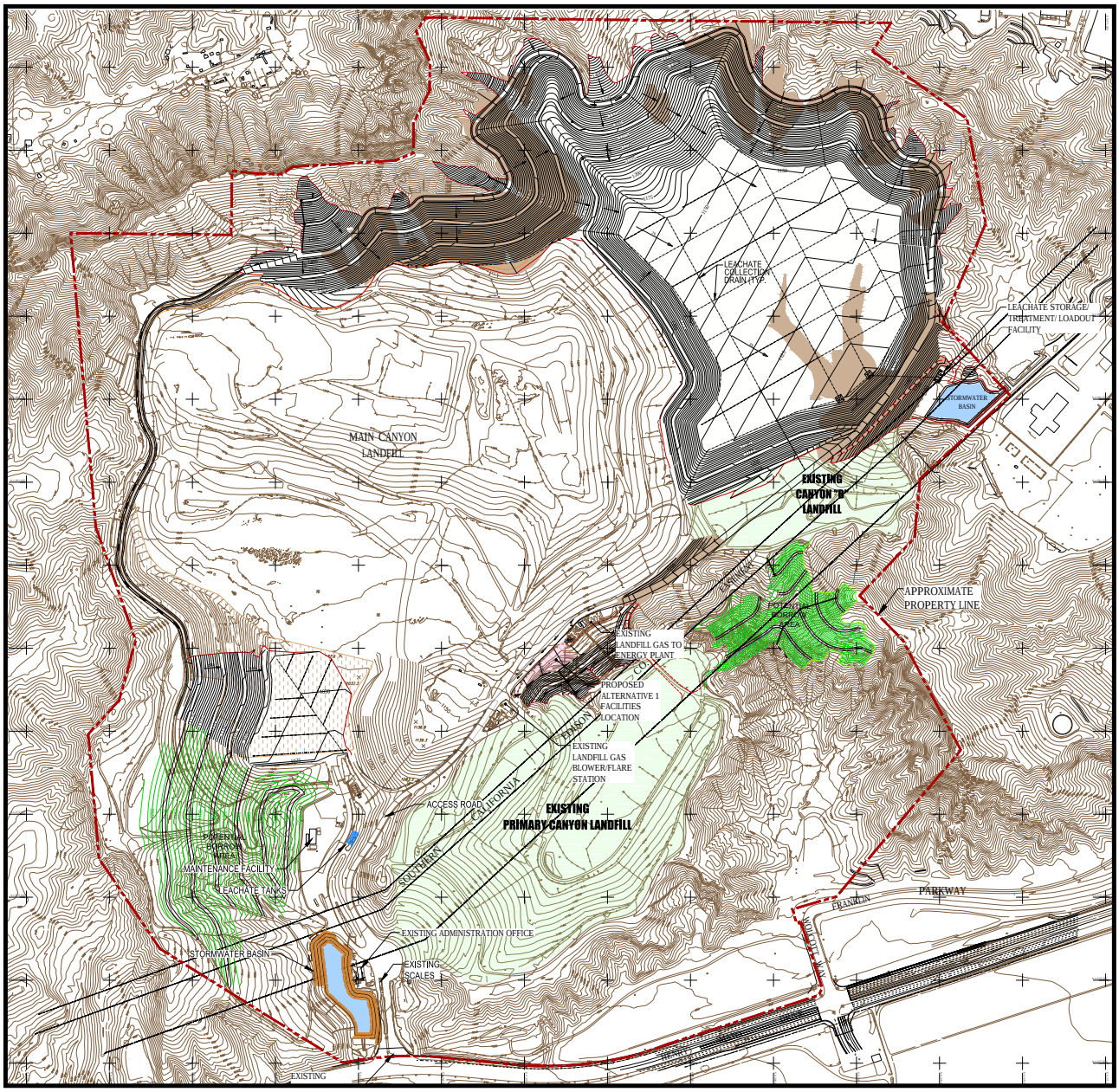



**Figure 18-7.**
**Proposed Excavation Plan**
**Alternative B: Continued Operation (Status Quo) with 0% Increase in Daily Waste Disposal Tonnage**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Source: Golder Associates, 2014

a. KOP 1 – Existing view of the Proposed Project site looking southwest from a relatively new single family subdivision located in the elevated area to the north and east of Hasley Canyon Road, along Alton Way.

b. KOP 1 – Simulated view of the Proposed Project site looking southwest from the subdivision that depicts the view as it would appear at the end of the operational phase.

c. KOP 1 – Simulated view of Alternative B: Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage looking southwest from the subdivision that depicts the view as it would appear at the end of the operational phase.

**Figure 18-8.**
**KOP 1: Residential Area North and East of Hasley Canyon Road Comparison of Proposed Project and Alternative B from KOP 1**
*Chiquita Canyon Landfill*
*Master Plan Revision*

a. KOP 2 – Existing view of the Proposed Project site looking west from SR-126 in the vicinity of Commerce Center Drive.

b. KOP 2 – Simulated view of the Proposed Project site looking west from SR-126 depicting the view as it would appear at the end of the operational phase.

c. KOP 2 – Simulated view of Alternative B: Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage looking west from SR-126 depicting the view as it would appear at the end of the operational phase.

**Figure 18-9.**
**KOP 2- Intersection of SR-126 and Commerce Center Drive**
**Comparison of Proposed Project and Alternative B from KOP 2**
*Chiquita Canyon Landfill*
*Master Plan Revision*

a. KOP 6 – Existing view of the Proposed Project site looking northeast from Chiquito Canyon Road.

b. KOP 6 – Simulated view of the Proposed Project site looking northeast from Chiquito Canyon Road depicting the view as it would appear at the end of the operational phase.

c. KOP 6 – Simulated view of Alternative B: Continued Operation (Status Quo) with 0% Increase of Daily Waste Disposal Tonnage looking northeast from Chiquito Canyon Road depicting the view as it would appear at the end of the operational phase.

**Figure 18-10.**
**KOP 6- Chiquito Canyon Road Comparison of Proposed Project and Alternative B from KOP 6**
*Chiquita Canyon Landfill*
*Master Plan Revision*

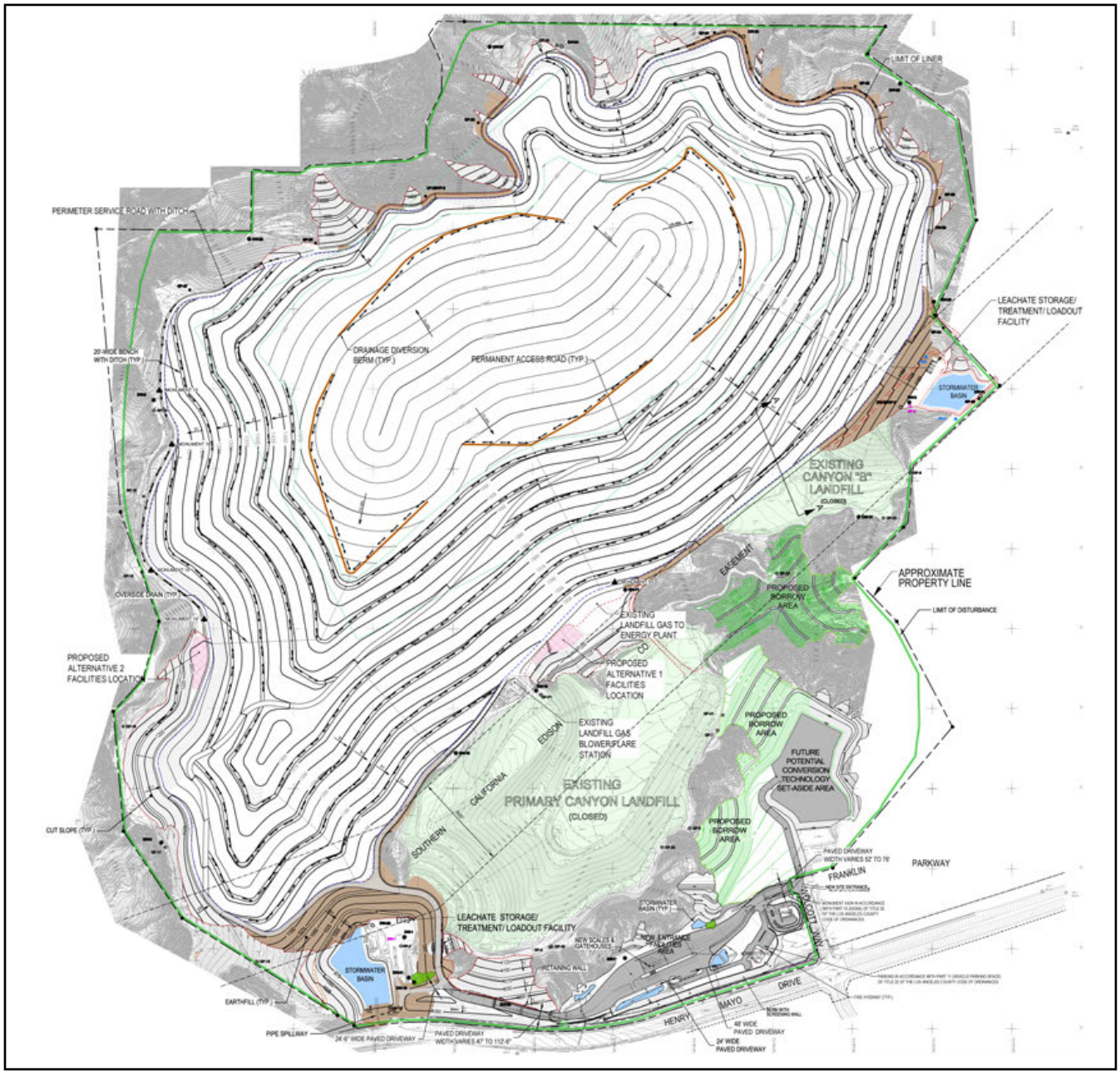



**Figure 18-11.**
**Proposed Site Plan**
**Alternative C: 50% Reduction of Proposed Additional Daily Waste Disposal Tonnage**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Cooper Aerial Surveys Co., Tuscon, AZ
Date of photography: March 17, 2015

Source: Golder Associates, 2015

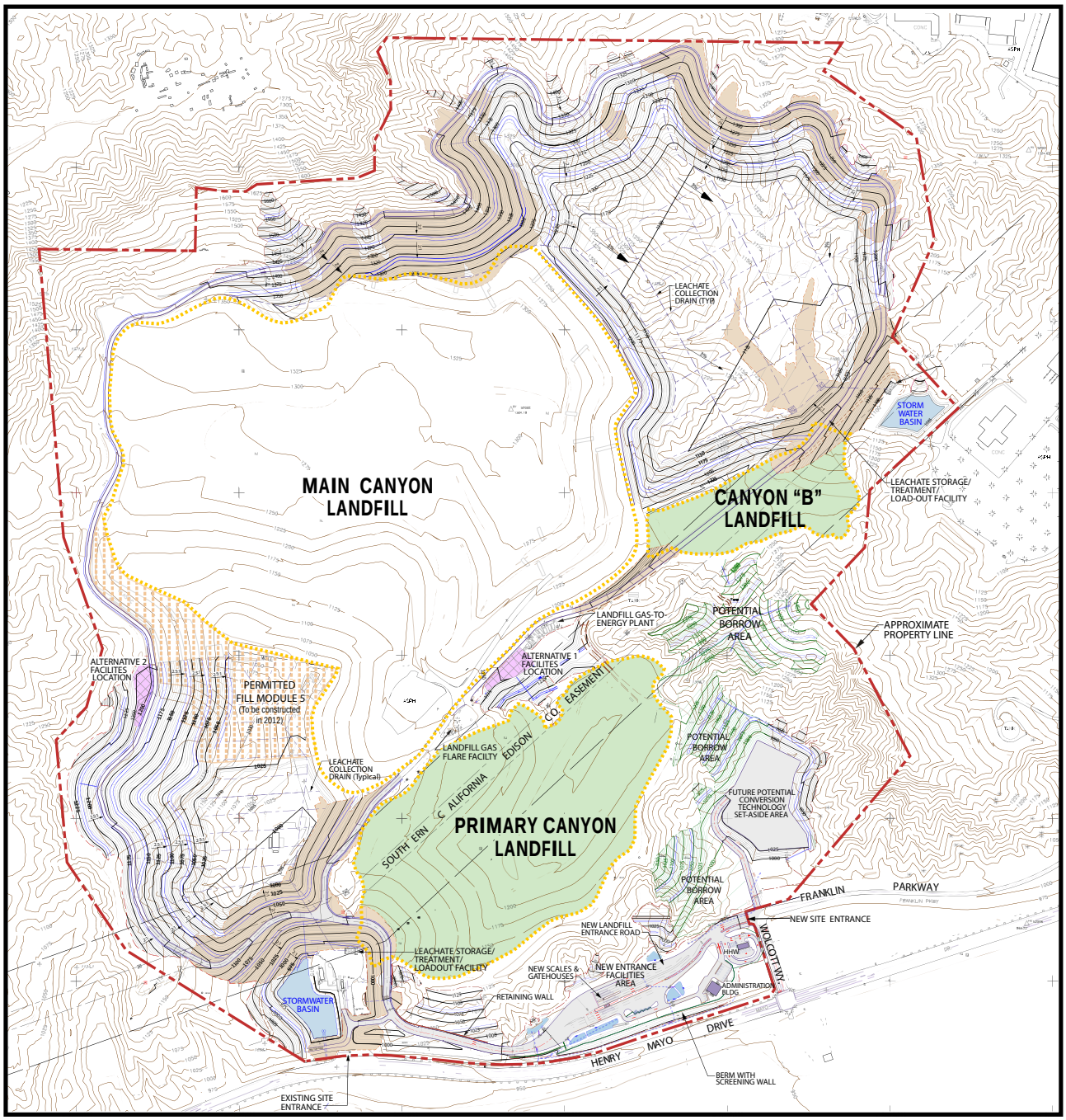



**Figure 18-12.**
**Proposed Excavation Plan**
**Alternative C: 50% Reduction of Proposed Additional Daily Waste Disposal Tonnage**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Base compiled by photogrammetric methods by
Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

Source: Golder Associates, 2014

a. KOP 1 – Existing view of the Proposed Project site looking southwest from a relatively new single family subdivision located in the elevated area to the north and east of Hasley Canyon Road, along Alton Way.

b. KOP 1 – Simulated view of the Proposed Project site looking southwest from the subdivision that depicts the view as it would appear at the end of the operational phase.

c. KOP 1 – Simulated view of Alternative C: 50% Reduction of Proposed Additional Daily Waste Disposal Tonnage looking southwest from the subdivision that depicts the view as it would appear at the end of the operational phase.

**Figure 18-13.**
**KOP 1- Residential Area North and East of Hasley Canyon Road Comparison of Proposed Project and Alternative C from KOP 1**
*Chiquita Canyon Landfill*
*Master Plan Revision*

a. KOP 2 – Existing view of the Proposed Project site looking west from SR-126 in the vicinity of Commerce Center Drive.

b. KOP 2 – Simulated view of the Proposed Project site looking west from SR-126 depicting the view as it would appear at the end of the operational phase.

c. KOP 2 – Simulated view of Alternative C: 50% Reduction of Proposed Additional Daily Waste Disposal Tonnage looking west from SR-126 depicting the view as it would appear at the end of the operational phase.

**Figure 18-14.**
**KOP 2- Intersection of SR-126 and Commerce Center Drive**
**Comparison of Proposed Project and Alternative C from KOP 2**
*Chiquita Canyon Landfill*
*Master Plan Revision*

a. KOP 6 – Existing view of the Proposed Project site looking northeast from Chiquito Canyon Road.

b. KOP 6 – Simulated view of the Proposed Project site looking northeast from Chiquito Canyon Road depicting the view as it would appear at the end of the operational phase.

c. KOP 6 – Simulated view of Alternative C: 50% Reduction of Proposed Additional Daily Waste Disposal Tonnage looking northeast from Chiquito Canyon Road depicting the view as it would appear at the end of the operational phase.

**Figure 18-15.**
**KOP 6- Chiquito Canyon Road Comparison of Proposed Project and Alternative C from KOP 6**
*Chiquita Canyon Landfill Master Plan Revision*

# Traffic Supplement

# Chiquita Canyon Landfill Master Plan Revision Traffic Supplement

| | |
|---|---|
| PREPARED FOR: | Los Angeles County Department of Public Works, Traffic and Lighting |
| COPY TO: | Chiquita Canyon Landfill |
| PREPARED BY: | CH2M HILL |
| DATE: | November 7, 2016 |

## Introduction

This Traffic Supplement for the Chiquita Canyon Landfill (CCL) Master Plan Revision (Supplement) clarifies baseline traffic for the Proposed Project and demonstrates that the clarified baseline does not affect the findings of the original Traffic Analysis prepared for the Proposed Project. This Supplement also provides an updated queuing analysis of the new site entrance for the Proposed Project using the clarified baseline for traffic, which does not change the findings of the original queuing analysis.

## Clarification of Baseline Traffic

The following sections describe the baseline traffic disclosed in the Original Draft Environmental Impact Report (EIR) and the clarification of operational baseline for the Proposed Project as recently defined by Los Angeles County. The following discussion also demonstrates that the clarification of operational baseline, including baseline traffic, does not change the findings of the traffic analysis described in the Original Draft EIR, and included in the Traffic Analysis included in Appendix G of the Original Draft EIR.

### Operational Baseline Traffic for Original Draft EIR

The Original Draft EIR considered traffic impacts of the Proposed Project. The Project Description for the Original Draft EIR included traffic tables that disclosed the number of trucks considered to be baseline and identified the number of additional trucks assumed to be required for the additional material to be received for the Proposed Project. The number of trucks shown in the traffic baseline in the Original Draft EIR was based on a hypothetical peak day – that is, the number of trucks that could be experienced at CCL on a peak day if the maximum quantity of different material types were received on a single day.

The *Chiquita Canyon Landfill Master Plan Revision Traffic Analysis* (Traffic Analysis) was prepared by CH2M HILL for the Proposed Project in 2014, using the traffic tables from the Original Draft EIR Project Description and included as Appendix G of the Original Draft EIR. The Traffic Analysis disclosed baseline truck trips and evaluated the potential traffic impacts from the number of additional trucks assumed to be required for the additional material to be received for the Proposed Project.

The Traffic Analysis assumed that there were 2,896 vehicles associated with the baseline and an additional 594 vehicles associated with the Proposed Project. Consequently, the Traffic Analysis EIR evaluated the potential impacts associated with the additional 594 vehicles. Of the 594 additional vehicles, 572 were assumed to be trucks associated with additional material to be received at the landfill and 22 were associated with additional employees.

# Operational Baseline Traffic for Partially Recirculated Draft EIR

Chapter 1 of the Partially Recirculated Draft EIR clarifies the operational baseline for the Proposed Project.

As described in Chapter 1, notwithstanding the variability of rate of material received at CCL, including minimum and peak quantities for waste disposed and beneficial use material, the Los Angeles County Department of Regional Planning determined that the operational baseline for CCL is the average of all material received at CCL in 2011, which is 6,622 tons per day, based on 312 operating days per year, as summarized in Table 1. Table 1 also shows that there are 403 trucks associated with the 6,622 tons of material per day in the operational baseline.

Table 1. Operational Baseline Material Received
*CCL Operation 2011*

| 2011 (January – December) | Waste Disposed (tons) | Beneficial Use Material (tons) | All Inbound Material (tons) | Loads (trucks) |
|---|---|---|---|---|
| Annual Total | 1,330,310 | 735,827 | 2,066,138 | 125,620 |
| Daily Average | 4,264 | 2,358 | 6,622 | 403 |
| Percent of Total | 64% | 36% | 100% | -- |

Table 2 describes the number and types of vehicles included in the operational baseline. Baseline traffic consists of the traffic associated with 6,622 tons per day of combined waste to be disposed and material to be diverted from waste disposal (Table 1), plus other baseline traffic that is not processed through the scale house, such as construction vehicles for special projects (primarily periodic cell construction) and employee and visitor-generated vehicles.

Table 2. Summary of Baseline Traffic
*2011 Operational Baseline*

| Material/Vehicle Source | Operational Baseline (trucks per day)[a] |
|---|---|
| Inbound Materials | 403 |
| Special Projects[b] | 100 |
| Employees and Visitors | 65 |
| Total | 568 |

[a.] Baseline vehicle count is based on the number of trucks associated with the operational baseline of 6,622 tons per day of inbound material.

[b.] Special projects could include entrance or cell construction, landfill gas system expansion, expansion of environmental monitoring systems, etc. Vehicles associated with special projects do not need to be processed through the scales, and instead can use the bypass lane.

# Traffic Baseline and Proposed Project

The operational baseline for truck trips was considered in conjunction with the Proposed Project to determine if the traffic analysis for the Proposed Project remains valid. As described in Chapter 2, the rate of all inbound material for the Proposed Project is 13,182 tons per day. This equates to an additional 6,560 tons per day over the clarified baseline conditions (6,622 tons per day). Table 3 summarizes the environmental baseline for inbound material and trucks, the Proposed Project for inbound material and trucks, and the resulting change for inbound material and trucks.

Table 3. Environmental Baseline, Proposed Project, and Change Evaluated
*Operational Baseline, Proposed Project, and Peak Change*

| Operational Baseline | Proposed Project | Change |
|---|---|---|
| 6,622 tons per day inbound material[a] | 13,182 tons per day | 6,560 additional tons per day |
| 568 vehicles per day | 1,162 vehicles per day | 594 additional vehicles per day |

[a.] Based on an average of 312 operating days per year.

Table 4 provides additional detail regarding the vehicle source for the operational baseline, the Proposed Project, and the resulting net change in number of trucks. The Proposed Project consists of baseline traffic plus traffic associated with 6,560 tons per day of additional inbound material plus 22 additional employees. The net increase in traffic (i.e. Proposed Project minus baseline project) is 594 trucks per day. This net increase in daily traffic is the same as the net increase in daily traffic evaluated in the Original Draft EIR.

Table 4. Summary of Peak Potential Daily Traffic
*Clarified Operational Baseline, Proposed Project, and Peak Change*

| Material/Vehicle Source | Operational Baseline[a] (trucks per day) | Proposed Project[b] (trucks per day) | Peak Change[c] (trucks per day) |
|---|---|---|---|
| Inbound Materials | 403 | 975 | |
| Transfer Trucks | -- | -- | 272 |
| Route Trucks | -- | -- | 300 |
| Special Projects[d] | 100 | 100 | 0 |
| Employees and Visitors | 65 | 87 | 22 |
| Total | 568 | 1,162[e] | 594[e] |

[a.] Baseline vehicle count is based on the number of trucks associated with the operational baseline or all inbound material.

[b.] Proposed Project is the sum of baseline trucks plus the proposed vehicle increase for a peak day.

[c.] Number of trucks anticipated to be required for an additional 6,560 tons per day of additional inbound material for a peak day. Includes any combination of the transfer and route trucks, with an estimated peak of 272 transfer trucks and 300 route trucks. It is estimated that transfer trucks would carry an average of 22 tons per load and route trucks would carry an average of 10 tons per load. The tonnage per truck would be variable depending on material, and the type of truck would vary, but total additional trucks would not exceed 572 and total additional tonnage would not exceed 6,560 tons.

[d.] Special projects could include entrance or cell construction, landfill gas system expansion, expansion of environmental monitoring systems, etc.

[e.] The distribution of trucks per day are likely to correspond to the average hourly distribution shown in Table 5.

## Summary of Traffic for Proposed Project Evaluated in Original Draft EIR and Partially Recirculated Draft EIR

While the number of trucks included in the baseline for the Original Draft EIR and the Partially Recirculated Draft EIR are different, the evaluation of potential traffic impacts for the Proposed Project is based on the number of estimated additional trucks associated with additional material to be received at CCL as part of the Proposed Project, plus additional employees. The number of additional vehicles associated with the Proposed Project (594) has not changed between the Original Draft EIR and the Proposed Project.

Therefore, despite the change in baseline vehicles as a result of the clarified operational baseline, there is no change to the findings of the Traffic Analysis included as Appendix G of the Original Draft EIR nor to the findings discussed in Chapter 10.0, Traffic and Transportation, of the Original Draft EIR.

# Project Site Entrance Queuing Analysis

The Traffic Analysis included a queuing analysis of the new project entrance to confirm that the projected traffic resulting from the Proposed Project would not queue through the Wolcott Way/ Franklin Parkway intersection. The original queuing analysis was conducted to evaluate 1,638 trucks solely associated with waste to be received at CCL for the Proposed Project.

Subsequent to the Traffic Analysis included in the Original Draft EIR, an updated queuing analysis for the Proposed Project was conducted in September 2014 at the request of the County of Los Angeles Department of Public Works (LACDPW) to demonstrate that the projected traffic resulting from the Proposed Project would not queue through the Wolcott Way/Franklin Parkway intersection. On October 8, 2014, LACDPW, Traffic and Lighting Division, provided a response to the updated analysis, stating that they "generally agree with the Vehicular Queuing Analysis that the proposed site layout at the reconfigured Chiquita Canyon Landfill will be able to accommodate the projected number of vehicles arriving to the site throughout the day and will provide enough storage to accommodate projected Chiquita Canyon Landfill traffic without queuing onto public roadways."

As a result of the clarified operational baseline described previously in this Supplement, and in detail in Chapter 1, Introduction, of the Partially Recirculated Draft EIR, this revised queuing analysis has been prepared to reflect the 975 trucks associated with all inbound material to be received at CCL for the Proposed Project (Table 4), which is less than the number of trucks included in the September 2014 updated queuing analysis. The number of trucks included in the queuing analysis includes trucks associated with both the operational baseline and the additional material associated with the Proposed Project. All inbound material also includes both disposal waste and beneficial use material. By including all the trucks associated with inbound material, the revised queuing analysis conservatively addresses whether the proposed relocated site entrance can accommodate all vehicles associated with the Proposed Project without queuing through the Wolcott Way/Franklin Parkway intersection.

## Project Location and Access

The Proposed Project will remove the existing CCL entrance, which is located on State Route 126 between Chiquito Canyon Road and Wolcott Way, and construct a new entrance on the corner of Wolcott Way and Franklin Parkway (Figure 1). It is assumed that the intersection of Wolcott Way and Franklin Parkway will operate as an all-way stop controlled intersection. The location and design of the Proposed Project entrance is the same as the entrance evaluated in the original Traffic Analysis.

The new entrance of the CCL facility will bring vehicles to the site from the Wolcott Way/Franklin Parkway intersection. Vehicles will enter the site and drive westbound to the scales and gatehouses located approximately 900 feet west of the Wolcott Way/Franklin Parkway intersection. A queuing analysis was performed to confirm that the projected project-related traffic will not queue through this intersection.

## Project Trip Generation and Vehicle Mix

The Proposed Project would generate 1,162 vehicles trips (Table 4) based on the tonnage increase of 6,560 tons per day. This includes inbound trash (disposal) and other material (beneficial reuse) trips, special projects-related trips, employee/visitor generated trips, and outbound trips. Not all of these trips are required to be processed through the scales and could instead use the bypass lane at the entrance. Vehicles using the bypass lane include special construction-related trips, employee-generated and visitor trips and all outbound trips. Therefore, the queuing analysis is based on the vehicle storage needed for

inbound material only (including both trash disposal and beneficial use material), which would be an estimated maximum of 975 vehicles (Table 4). The trip distribution used for updated queuing analysis is the same trip distribution used for the previous queuing analysis.

## Queuing Analysis Assumptions

The queuing calculations are based on the same assumptions used in the *CCL Master Plan Revision Traffic Analysis* (Appendix G of the Draft EIR) and include the following assumptions:

- The distance between the Wolcott Way and the limit line where vehicles must wait to enter the scales is 900 feet.
- There are two lanes of storage between the limit line where vehicles must wait to enter the scales and Wolcott Street (site entrance). The two lanes provide a total of 1,800 feet of storage.
- A third lane extends from the limit line to approximately 480 feet east.
- A fourth lane extends from the limit line to approximately 290 feet east.
- A fifth lane extends from the limit line to approximately 200 feet east.
- A sixth lane extends from the limit line to approximately 130 feet east.
- The combined storage of the six lanes is 2,900 feet. Lane lengths are shown on Figure 1.
- The average vehicle length is assumed to be 50 feet (truck).
- The proposed entrance can store 58 vehicles (50 feet per vehicle) at any given time.
- Based on historical gate receipt data, the average wait time at the scales is 1 minute per vehicle.
- The proposed entrance will have four scales on opening day and eventually six scales, one for each lane, if needed in the future. Each scale can process 60 vehicles per hour based on historical data. On opening day, the Proposed Project entrance would have the capability to process approximately 240 vehicles per hour (4 vehicles per minute).
- CCL is permitted to be open 24 hours per day, 6 days per week. Nearly all material is received at CCL between 3:00 a.m. and 6:00 p.m., which is reflected in the analysis.
- Historically, there has been material received between 6:00 p.m. and 3:00 a.m. for beneficial use and special projects. If needed, CCL could serve customers during this time as well. If this were to happen, the vehicles associated with the material would arrive at CCL during off-peak times, and would further diminish the number of vehicles arriving at CCL between 3:00 a.m. and 6:00 pm.
- The vehicle arrival rate is spread out over the course of each hour.

## Summary of Findings

The queuing calculations for the projected inbound trips (975 trips) are summarized in Table 5. The analysis shows that the storage provided at the new CCL entrance will easily be able to accommodate the projected number of vehicles arriving to the site throughout the day and will provide enough storage to accommodate projected CCL traffic without queuing onto public roadways. This conclusion does not change the findings of the original queuing analysis and is based on the following reasons:

- There is no projected queue at any time during the day because the processing rate of the gates (240 vehicles per hour) exceeds the arrival rate at all hours of the day. Using the projected trip estimate of 975 trips the storage provided will be able to easily accommodate the projected number of inbound vehicles at all times of the day.

- The inbound trips (analyzed in the queue) are generally spread throughout a fifteen-hour period. At the peak arrival (112 vehicles), there is still capacity for an additional 128 vehicles. There are also 9 hours of the day when 100 percent of the storage capacity is available.
- CCL is permitted to be open 24 hours per day, 6 days per week. This provides CCL the operational flexibility to coordinate with customers and arrange to be open when loads are anticipated.
- Approximately 16 percent of the trips are not required to cross the scales, including special construction-related trips, employee-generated and visitor trips, and all outbound trips.
- Four scales will be provided on opening day, which would allow CCL to process 240 vehicles per hour. However, the site entrance has been designed with six lanes, each of which could have a scale, which would allow CCL to process up to 360 vehicles per hour if needed in the future.
- If, despite the findings document herein, actual operation of the Proposed Project were to result in queuing into the Wolcott Way/Franklin Parkway intersection, CCL has additional options for managing the queue at CCL's entrance. These options may include adding an additional scale, scheduling customers bringing beneficial use material so that they do not arrive during peak times, additional onsite management, and turning away customers.

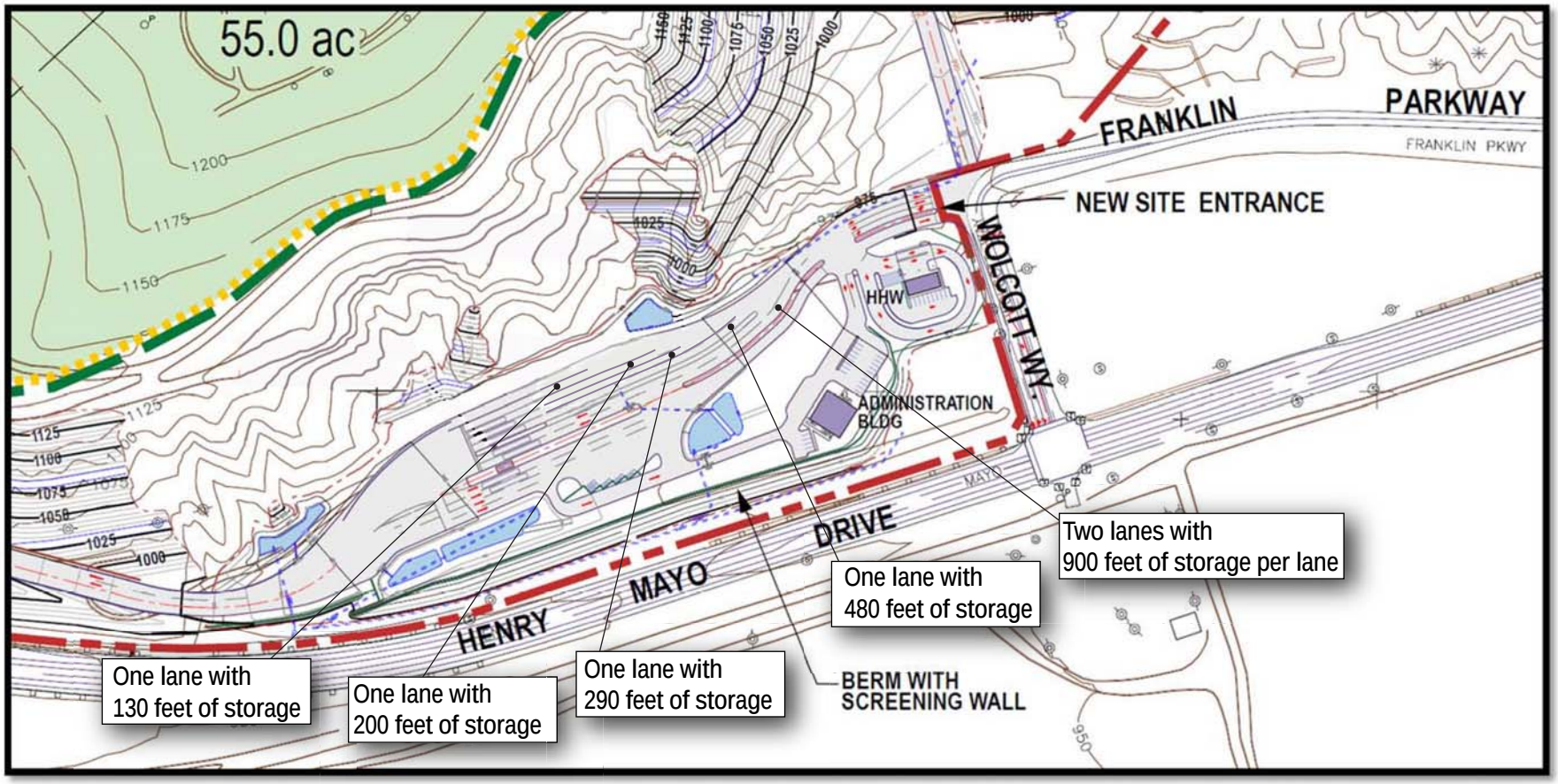
Table 5. Summary of Queuing Analysis of Estimated Peak Project Trip Generation (975 inbound trips)
*New Chiquita Canyon Landfill Entrance on Opening Day (4 Scales)*

| Time of Day | | | Average Hourly Distribution* | Arrival Rate (veh per hour) | Processing Rate (veh per hour) | Queue at end of this period (veh) | Queue at end of this period (ft) | Available Storage (ft) | Will Demand Exceed Storage? |
|---|---|---|---|---|---|---|---|---|---|
| 12:00 AM | to | 1:00 AM | 0.0% | 0 | 240 | 0.0 | 0 | 2,900 | No |
| 1:00 AM | to | 2:00 AM | 0.0% | 0 | 240 | 0.0 | 0 | 2,900 | No |
| 2:00 AM | to | 3:00 AM | 0.0% | 0 | 240 | 0.0 | 0 | 2,900 | No |
| 3:00 AM | to | 4:00 AM | 0.9% | 8 | 240 | 0.0 | 0 | 2,900 | No |
| 4:00 AM | to | 5:00 AM | 3.7% | 36 | 240 | 0.0 | 0 | 2,900 | No |
| 5:00 AM | to | 6:00 AM | 5.4% | 53 | 240 | 0.0 | 0 | 2,900 | No |
| 6:00 AM | to | 7:00 AM | 6.0% | 59 | 240 | 0.0 | 0 | 2,900 | No |
| 7:00 AM | to | 8:00 AM | 6.0% | 59 | 240 | 0.0 | 0 | 2,900 | No |
| 8:00 AM | to | 9:00 AM | 8.3% | 81 | 240 | 0.0 | 0 | 2,900 | No |
| 9:00 AM | to | 10:00 AM | 7.7% | 75 | 240 | 0.0 | 0 | 2,900 | No |
| 10:00 AM | to | 11:00 AM | 8.0% | 78 | 240 | 0.0 | 0 | 2,900 | No |
| 11:00 AM | to | 12:00 PM | 11.5% | 112 | 240 | 0.0 | 0 | 2,900 | No |
| 12:00 PM | to | 1:00 PM | 9.5% | 92 | 240 | 0.0 | 0 | 2,900 | No |
| 1:00 PM | to | 2:00 PM | 7.4% | 73 | 240 | 0.0 | 0 | 2,900 | No |
| 2:00 PM | to | 3:00 PM | 8.3% | 81 | 240 | 0.0 | 0 | 2,900 | No |
| 3:00 PM | to | 4:00 PM | 7.2% | 70 | 240 | 0.0 | 0 | 2,900 | No |
| 4:00 PM | to | 5:00 PM | 8.0% | 78 | 240 | 0.0 | 0 | 2,900 | No |
| 5:00 PM | to | 6:00 PM | 2.0% | 20 | 240 | 0.0 | 0 | 2,900 | No |
| 6:00 PM | to | 7:00 PM | 0.0% | 0 | 240 | 0.0 | 0 | 2,900 | No |
| 7:00 PM | to | 8:00 PM | 0.0% | 0 | 240 | 0.0 | 0 | 2,900 | No |
| 8:00 PM | to | 9:00 PM | 0.0% | 0 | 240 | 0.0 | 0 | 2,900 | No |
| 9:00 PM | to | 10:00 PM | 0.0% | 0 | 240 | 0.0 | 0 | 2,900 | No |
| 10:00 PM | to | 11:00 PM | 0.0% | 0 | 240 | 0.0 | 0 | 2,900 | No |
| 11:00 PM | to | 12:00 AM | 0.0% | 0 | 240 | 0.0 | 0 | 2,900 | No |
| **Total Number of Vehicles** | | | | **975** | | **Maximum Queue Length (ft)** | **0** | **Will Queue Ever Exceed Storage** | **No** |

* Average hourly distribution based on CCL gate receipt data collected in 2014. See Attachment A for copies of gate receipt data used to calculate average hourly distribution percentages. Days selected for gate receipt data based on days when CCL operation was at or near permitted daily limit of 6,000 tons per day of waste material.

# Traffic Supplement Figure

FIGURE 1
Proposed CCL Entrance Plan




EN1030151026SCO CCL Entrance Plan Figure 1.ai 10/16

# Attachment A
# CCL Gate Receipt Data

Print Date: 8/18/2014

# Chiquita Canyon Vehicle Count & Total Tons per Hour

Start Date: 1/13/2014 Stop Date: 1/13/2014

| Time | | | Total Tons | Vehicle Count |
|---|---|---|---|---|
| Selected Grid(s): DISPOSAL | | | | |
| 1/13/2014 | | | | |
| 4.00am | to | 5.00am | 264.60 | 12 |
| 5.00am | to | 6.00am | 241.54 | 13 |
| 6.00am | to | 7.00am | 220.23 | 13 |
| 7.00am | to | 8.00am | 333.17 | 22 |
| 8.00am | to | 9.00am | 546.69 | 33 |
| 9.00am | to | 10.00am | 433.84 | 33 |
| 10.00am | to | 11.00am | 457.69 | 36 |
| 11.00am | to | 12.00pm | 453.91 | 34 |
| 12.00pm | to | 1.00pm | 687.78 | 37 |
| 1.00pm | to | 2.00pm | 548.22 | 32 |
| 2.00pm | to | 3.00pm | 576.38 | 35 |
| 3.00pm | to | 4.00pm | 459.47 | 31 |
| 4.00pm | to | 5.00pm | 288.00 | 26 |
| 5.00pm | to | 6.00pm | 22.12 | 1 |
| | | | **5,533.64** | **358** |
| | | **Report total:** | **5,533.64** | **358** |

Print Date: 8/18/2014

# Chiquita Canyon Vehicle Count & Total Tons per Hour

Start Date: 1/14/2014 Stop Date: 1/14/2014

| Time | | | Total Tons | Vehicle Count |
|---|---|---|---|---|
| Selected Grid(s): DISPOSAL | | | | |
| 1/14/2014 | | | | |
| 3.00am | t | 4.00am | 41.50 | 2 |
| 4.00am | t | 5.00am | 93.00 | 4 |
| 5.00am | t | 6.00am | 322.26 | 14 |
| 6.00am | t | 7.00am | 605.49 | 33 |
| 7.00am | t | 8.00am | 372.53 | 23 |
| 8.00am | t | 9.00am | 399.47 | 20 |
| 9.00am | t | 10.00am | 544.75 | 27 |
| 10.00am | t | 11.00am | 488.72 | 32 |
| 11.00am | t | 12.00pm | 479.88 | 33 |
| 12.00pm | t | 1.00pm | 414.01 | 28 |
| 1.00pm | t | 2.00pm | 496.85 | 28 |
| 2.00pm | t | 3.00pm | 507.04 | 29 |
| 3.00pm | t | 4.00pm | 270.89 | 19 |
| 4.00pm | t | 5.00pm | 415.30 | 28 |
| 5.00pm | to | 6.00pm | 456.06 | 36 |
| | | | **5,907.75** | **356** |
| | | **Report total:** | **5,907.75** | **356** |

Print Date: 8/18/2014

# Chiquita Canyon Vehicle Count & Total Tons per Hour

Start Date: 1/15/2014 Stop Date: 1/15/2014

| Time | | | Total Tons | Vehicle Count |
|---|---|---|---|---|
| Selected Grid(s): DISPOSAL | | | | |
| 1/15/2014 | | | | |
| 3.00am | to | 4.00am | 112.84 | 5 |
| 4.00am | to | 5.00am | 514.13 | 22 |
| 5.00am | to | 6.00am | 858.80 | 39 |
| 6.00am | to | 7.00am | 415.18 | 26 |
| 7.00am | to | 8.00am | 507.71 | 25 |
| 8.00am | to | 9.00am | 788.02 | 47 |
| 9.00am | to | 10.00am | 379.05 | 24 |
| 10.00am | to | 11.00am | 234.50 | 18 |
| 11.00am | to | 12.00pm | 448.70 | 31 |
| 12.00pm | to | 1.00pm | 270.41 | 20 |
| 1.00pm | to | 2.00pm | 239.10 | 16 |
| 2.00pm | to | 3.00pm | 295.75 | 17 |
| 3.00pm | to | 4.00pm | 339.17 | 25 |
| 4.00pm | to | 5.00pm | 251.76 | 30 |
| 5.00pm | to | 6.00pm | 6.41 | 1 |
| | | | **5,661.53** | **346** |
| | | **Report total:** | **5,661.53** | **346** |

Print Date: 8/18/2014

# Chiquita Canyon Vehicle Count & Total Tons per Hour

Start Date: 2/20/2014 Stop Date: 2/20/2014

| Time | | | Total Tons | Vehicle Count |
|---|---|---|---|---|
| Selected Grid(s): DISPOSAL | | | | |
| 2/20/2014 | | | | |
| 3.00am | to | 4.00am | 163.86 | 7 |
| 4.00am | to | 5.00am | 406.90 | 18 |
| 5.00am | to | 6.00am | 276.04 | 15 |
| 6.00am | to | 7.00am | 262.27 | 17 |
| 7.00am | to | 8.00am | 330.76 | 20 |
| 8.00am | to | 9.00am | 487.03 | 29 |
| 9.00am | to | 10.00am | 581.50 | 34 |
| 10.00am | to | 11.00am | 381.80 | 24 |
| 11.00am | to | 12.00pm | 636.19 | 42 |
| 12.00pm | to | 1.00pm | 641.76 | 38 |
| 1.00pm | to | 2.00pm | 302.18 | 21 |
| 2.00pm | to | 3.00pm | 388.74 | 30 |
| 3.00pm | to | 4.00pm | 186.50 | 21 |
| 4.00pm | to | 5.00pm | 148.24 | 23 |
| | | | **5,193.77** | **339** |
| | | **Report total:** | **5,193.77** | **339** |

Print Date: 8/18/2014

# Chiquita Canyon Vehicle Count & Total Tons per Hour

Start Date: 4/30/2014 Stop Date: 4/30/2014

| Time | | | Total Tons | Vehicle Count |
|---|---|---|---|---|
| Selected Grid(s): DISPOSAL | | | | |
| 4/30/2014 | | | | |
| 3.00am | to | 4.00am | 108.19 | 5 |
| 4.00am | to | 5.00am | 249.68 | 12 |
| 5.00am | to | 6.00am | 321.76 | 17 |
| 6.00am | to | 7.00am | 125.45 | 16 |
| 7.00am | to | 8.00am | 217.52 | 16 |
| 8.00am | to | 9.00am | 231.73 | 18 |
| 9.00am | to | 10.00am | 237.72 | 17 |
| 10.00am | to | 11.00am | 458.34 | 34 |
| 11.00am | to | 12.00pm | 944.03 | 60 |
| 12.00pm | to | 1.00pm | 737.65 | 43 |
| 1.00pm | to | 2.00pm | 694.59 | 36 |
| 2.00pm | to | 3.00pm | 543.36 | 35 |
| 3.00pm | to | 4.00pm | 501.52 | 32 |
| 4.00pm | to | 5.00pm | 354.88 | 34 |
| 5.00pm | to | 6.00pm | 24.13 | 1 |
| | | | **5,750.55** | **376** |
| | | **Report total:** | **5,750.55** | **376** |

# Visual Resources Supplement

# Chiquita Canyon Landfill Master Plan Revision Visual Resources Supplement

| | |
|---|---|
| PREPARED FOR: | Los Angeles County Department of Regional Planning |
| COPY TO: | Chiquita Canyon Landfill |
| PREPARED BY: | CH2M |
| DATE: | October 3, 2016 |

This Visual Resources Supplement for the Chiquita Canyon Landfill Master Plan Revision (Supplement) provides additional information regarding the existing condition and potential visual impacts of the Proposed Project. It provides:

1. Updated Existing Condition photographs for three Key Observation Points (KOPs) and updated simulated view for one of the KOPs
2. Two additional viewpoints and simulated views for the Proposed Project, including one from a cumulative project location, with impact determinations
3. One additional character photo for the Proposed Project with accompanying line-of-sight diagram

All referenced figures are located at the end of this Supplement.

# Updated Existing Condition

Existing views for KOPs and Character Photos depicted in the Original Draft EIR were photo-documented in June 2012. Updated Existing Condition photographs were captured in August 2016 for the Partially Recirculated Draft EIR and are provided for locations where there has been a change to visual character or quality, which includes KOPs 1, 2 and 3. No change to existing views has occurred at KOPs 4, 5, 6, or 7, or Character Photos 1, 2, or 3. Figure VS-1 indicates the locations of these viewpoints.

## KOP 1: Residential Area East of Hasley Canyon Road

Figure VS-2 replaces Figure 15-2a from the Draft EIR and depicts a current view toward CCL from a road in the relatively new single-family subdivision in the elevated area to the east of Hasley Canyon Road, along Alton Way.

Between the Original Draft EIR and August 2016, the existing condition view from KOP 1 changed slightly. Specifically, in the right-hand side of the view, grading and slope stability activities associated with the Sterling Gateway development north of CCL is now visible.

At present, the landfill is not visible from this location, but this view is representative of views toward CCL from the roads and homes in this area from which the Proposed Project has the potential to be seen. The change in the existing condition does not change the conclusion of the Draft EIR, which is that the potential long-term visual impacts as a result of the Proposed Project would be less than significant from the residential area east of Hasley Canyon Road.

## KOP 2: Intersection of State Route 126 and Commerce Center Drive

Figure VS-3 replaces Figure 15-3a from the Original Draft EIR and depicts a current view of CCL from SR-126 in the vicinity of Commerce Center Drive; it replaces the previous KOP 2 which depicted a view from the southeastern corner of the intersection of SR-126 and Commerce Center Drive.

Between the Original Draft EIR and August 2016, the existing condition at, and view from, KOP 2 has changed significantly. Specifically, the intersection of SR-126 and Commerce Center Drive has been replaced by a fly-over intersection in the same location, and on- and off-ramps to SR-126 from/to Commerce Center Drive are under construction. Drivers no longer have an extended view toward CCL from this 4-way intersection; rather, drivers now have an elevated, but oblique, high-speed view as vehicles pass through the vicinity of SR-126 and Commerce Center Drive.

Currently, for westbound travelers on SR-126, the foreground of the view is dominated by the roadway and by roadway construction. The Commerce Center development and canyon ridgelines flanking the landfill can be seen in the middleground, and ridgelines located west of CCL are visible in the distance. The existing landfill is visible in the dip in the ridgeline on the eastern side of CCL that can be seen in the distant middleground in the center of this view. The Original Draft EIR determined that the overall level of visual quality at this KOP is moderately low.

Figure VS-4 replaces Figure 15-3b from the Draft EIR. Figure VS-4 is a visual simulation of the view of CCL from SR-126 in the vicinity of Commerce Center Drive after the landfill has closed. The Proposed Project fill area would be visible in the ridgeline dip from this KOP. The new entrance would not be visible from this viewpoint. After the closure of CCL, the presence of the fill area in the view would alter the view's character by blocking distant ridgelines. The uniformity of the landfill would contrast with the ruggedness of the surrounding hills and ridgelines. The level of vividness, intactness, and unity would be diminished from the existing condition, but these changes would not represent a significant change in the existing overall scenic quality of this view, which would remain moderately low.

The change in the existing condition at KOP 2 does not change the conclusion of the Draft EIR, which is that the potential long-term visual impacts as a result of the Proposed Project would be less than significant from the intersection of SR-126 and Commerce Center Drive.

The visual simulation for KOP 2 was revised to reflect the commercial and industrial development currently under construction along the north side of SR-126, west of Commerce Center Drive. Figure VS-5 replaces Figure 15-11b from the Draft EIR and simulates the view from KOP 2 after Proposed Project implementation and includes cumulative projects. As shown, the new commercial development would partially screen views of the Proposed Project from the SR-126 fly-over. This simulation demonstrates the future changed landscape in the vicinity of CCL. The simulation also shows that the introduction of cumulative projects into the landscape may reduce the overall effect of the Proposed Project on the surrounding landscape and/or substantially block views of the Proposed Project from key viewing locations.

## KOP 3: Valencia Travel Village

Figure VS-6 replaces Figure 15-4a from the Draft EIR and depicts a current view toward CCL from the access road for Valencia Travel Village. This view replaces the view from the previous KOP 3, which depicted a view from the exit of Valencia Travel Village onto SR-126.

Between the Original Draft EIR and August 2016, the existing condition at, and view from, KOP 3 has changed significantly. As a result of construction at SR-126 and Commerce Center Drive, the access for Valencia Travel Village with SR-126 has been relocated. The access road, and the entire length of Valencia Travel Village along the south side of SR-126 is now bordered by a solid block sound wall.

While the visual sensitivity of this location is high, because the potential viewers from Valencia Travel Village are stationary recreational and residential viewers, current and future views of CCL from Valencia Travel Village have been eliminated by the newly-constructed sound wall. Similarly, views from Valencia Travel Village of commercial development at the northwest corner of SR-126 and Commerce Center Drive have also been eliminated.

The Draft EIR concluded that the potential long-term visual impacts as a result of the Proposed Project would be less than significant from Valencia Travel Village. As a result of the change in the existing condition at Valencia Travel Village, the impact determination is revised to conclude that no impacts related to visual resources as a result of the Proposed Project would be anticipated at Valencia Travel Village.

# Additional Viewpoints

Two additional viewpoints for the Proposed Project have been included in this Supplement. These viewpoints are intended to further inform the public about potential future views of the Proposed Project. The addition of these two viewpoints do not constitute significant new information, and no new or increased potential impacts associated with visual resources have been identified subsequent to release of the Original Draft EIR. Figure VS-1 indicates the locations of these viewpoints.

## New KOP 8: Chiquito Canyon Road at Fire Training Camp

Figure VS-7 depicts an additional view from Chiquito Canyon Road looking east toward CCL from the entrance to the Del Valle Emergency Training Center. The landfill is located beyond the dip in the ridgeline visible in this view; existing landfill may occasionally be visible through this ridgeline dip. The primary elements in this view include the flat, open land on the valley floor, the naturally vegetated hillsides, and the fence and row of trees along the ridgeline. Although the elements of this view are pleasing, they are not distinctive, so the level of vividness of this view is not high. The visual unity and intactness of the view are diminished somewhat by the fence and artificial-appearing line of trees along the ridgeline. The overall visual quality of this view is moderate. The visual sensitivity of this view is low in that it would be visible for short periods of time, somewhat outside the primary cone of vision, of motorists on Chiquito Canyon Road. There are no residential, recreational, or sustained views of CCL from this location.

The ridgeline that extends from left to right in the view from KOP 8 is considered to be a primary ridgeline by the Castaic Area Community Standards District (CACSD). The Proposed Project is located within the CACSD and conforms to the CACSD requirements for ridgeline protection. Specifically, the CACSD states that "no development, grading, construction, or improvements shall be allowed on:

i. a significant ridgeline;

ii. within a 50-foot radius from every point on the crest of a primary ridgeline; or

iii. within a 25-foot radius from every point on the crest of a secondary ridgeline.

Grading for the Proposed Project does not violate any of these conditions. The Proposed Project does not include grading on or within a 50-foot radius of the ridgeline visible from KOP 8. The Final Grading Plan for the Proposed Project as shown in Figure 2-3 of the Original Draft EIR, Chapter 2, Project Description, as well as in this Partially Recirculated Draft EIR, was designed to be consistent with the CACSD requirements to ensure that the Proposed Project does not violate any of these provisions.

Figure VS-8 depicts a simulated view of the Proposed Project from KOP 9 after landfill closure. In this view, only the landform alteration associated with landfill expansion is visible. After the closure of CCL, for the majority of this view, the Proposed Project final grading plan would result in an engineered fill

that would alter the view's character by blocking the distant ridgelines, and the uniformity of the landfill would contrast with the ruggedness of the surrounding hills and ridgelines. The level of vividness, intactness, and unity would be diminished from the existing condition, and these changes would represent a change in visual character and a decrease in visual quality, changing the overall level of visual quality of this view from moderate to moderately low. However, revegetation on the closed landfill is anticipated to be similar in texture to the vegetation on the surrounding hillsides, which would lessen the contrast between landfill and surrounding environment. Therefore, potential long-term visual impacts as a result of the Proposed Project would be less than significant from this location along Chiquito Canyon Road. No mitigation would be required.

The area between KOP 9 and the western property line of CCL along the entire length of Chiquito Canyon Road from SR-126 to the northern property line of CCL is part of the Newhall Ranch Specific Plan. In the vicinity of KOP 9, future commercial development is planned between Chiquito Canyon Road and the western property line of the landfill; this commercial development is anticipated to be similar in scope, scale, and appearance as the commercial development planned and currently under construction at the northwestern corner of SR-126 and Commerce Center Drive.

Figure VS-9 depicts a simulated view of the Proposed Project from KOP 9 after landfill closure and with anticipated commercial development constructed between the KOP and the landfill, as depicted in the Newhall Ranch Specific Plan.

The visual simulation for KOP 8 was revised to reflect the commercial and industrial development proposed as part of the Newhall Specific Plan between Chiquito Canyon Road and the western property line of CCL. As shown, the new development is not likely to screen views of the Proposed Project from Chiquito Canyon Road. However, this simulation demonstrates the future changed landscape in the vicinity of KOP 8. The simulation shows that the introduction of cumulative projects into the landscape may reduce the overall effect of the Proposed Project on the surrounding landscape and/or substantially block views of the Proposed Project from nearby viewing locations.

## New KOP 9: Homestead Village

Figure VS-10 shows an existing view toward CCL from within the proposed future Homestead Village, which is part of the Newhall Ranch Specific Plan. In Figure VS-10, the intersection of Wolcott Way and SR-126, the proposed new entrance for CCL, is centered in the photograph.

The foreground in this view is characterized by the fallow agricultural fields and natural drainages of Newhall Ranch. SR-126 is visible as a linear feature in the middleground of the view, but is not an obvious landscape element. Both active and closed landfill areas within CCL are highly visible in the middleground, and distant ridgelines are visible in the background.

The landscape in this view is somewhat lacking in contrast, although the canyons and ridgelines in the middleground and background of this view are visually pleasing. The fallow agriculture fields in the foreground and the active area of the landfill are man-made elements of the landscape that somewhat decrease the intactness and unity of the view. The current view does not reflect any of the anticipated development that would occur between the viewpoint and the landfill. The visual quality of this view is considered to be moderate.

The number of users in Homestead Village for whom this is a potentially representative view may be substantial; additionally, Homestead Village is anticipated to be primarily residential and may have homes with views oriented in the direction of this view. Consequently, the visual sensitivity for this view is considered to be high.

Figure VS-11 shows a simulated view toward CCL from KOP 9 with implementation of the Proposed Project.

The relocated entrance at Wolcott Way represents a change in the view from KOP 9. However, at the distance between KOP 9 and the relocated entrance, entrance facilities will not be visible in detail, even if direct views between KOP 9 and the landfill entrance are possible. Also, given the intense level of future development in the project vicinity, the landform alteration associated with the relocated entrance is not anticipated to be out of scope or scale with surrounding development, including that on the south side of SR-126 associated with the Newhall Ranch Specific Plan. By the time KOP 9 represents potential views from future residents within Homestead Village, it is likely that the area between the KOP and SR-126 will be completely built out with multi-story residential and commercial structures.

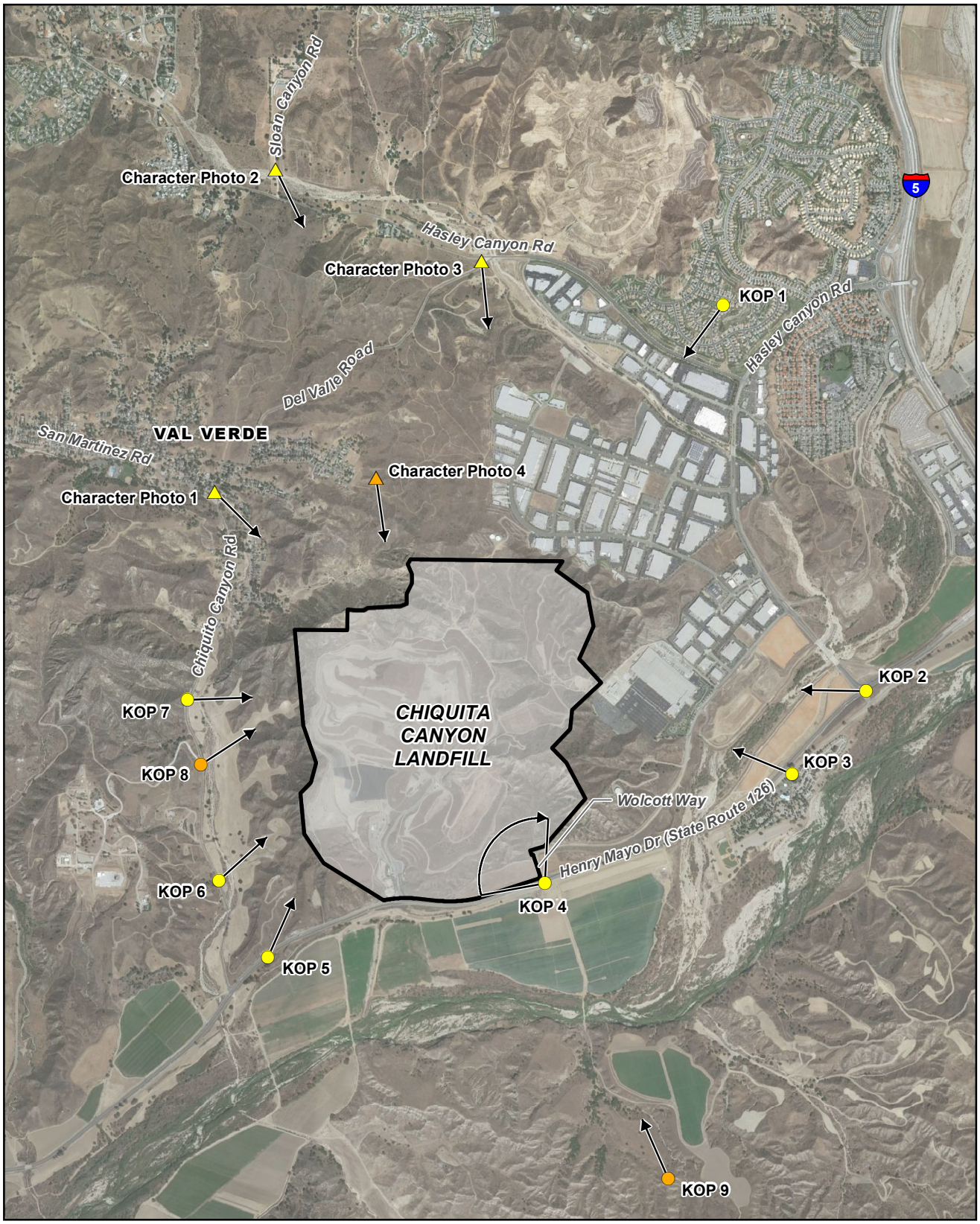
The increased maximum final elevation of the expanded landfill for the Proposed Project would be visible from KOP 9, but following landfill closure, the revegetated landfill would represent an improvement in view over the existing view. Further, the engineered fill of the landfill would not block background ridgeline views, further reducing the potential for visual impacts.

Visual resources impacts associated with the Proposed Project from KOP 9 are anticipated to be less than significant. No mitigation is required.

# Additional Character Photo

Figure VS-12 is an existing view toward CCL from the proposed future Sterling Ranch Estates development (identified as Cumulative Project #3 in the Original Draft EIR). From this location, the significant ridgeline that also marks a portion of CCL's northern property line precludes views of the Proposed Project. A line-of-sight diagram from this location toward CCL illustrates the lack of visibility from this location, and is also provided in Figure VS-12.

# Visual Resources Supplement
# Figures




***LEGEND***

Project Boundary

**Draft EIR**

- Character Photo
- KOP
- Photo Direction

**Visual Supplement**

- Character Photo 4
- KOP
- Photo Direction

N

0 0.25 0.5

Miles

**Figure VS-1.**
**Photo Viewpoint Locations**
*Chiquita Canyon Landfill*
*Master Plan Revision*

\\galt\proj\chiquita\MapFiles\2016\Visual_160826.mxd

KOP 1 – Existing view of the Proposed Project site looking southwest from a relatively new single family subdivision located in the elevated area to the north and east of Hasley Canyon Road, along Alton Way.

**Figure VS-2.**
**KOP 1**
**Residential Area North and East of Hasley Canyon Road**
*Chiquita Canyon Landfill Master Plan Revision*

KOP 2 – Existing view of the Proposed Project site looking west from SR-126 in the vicinity of Commerce Center Drive.

**Figure VS-3.**
**KOP 2**
**SR-126 in the Vicinity of Commerce Center Drive**
*Chiquita Canyon Landfill Master Plan Revision*

KOP 2 – Simulated view of the Proposed Project site looking west from SR-126 that depicts the view as it would appear at the end of the operational phase.

**Figure VS-4.**
**KOP 2**
**SR-126 in the Vicinity of Commerce Center Drive**
*Chiquita Canyon Landfill Master Plan Revision*

KOP 2 – Simulated view of the Proposed Project site as it would appear at the end of the operational phase that includes cumulative projects development, looking west from SR-126.

**Figure VS-5.**
**KOP 2**
**SR-126 in the Vicinity of Commerce Center Drive**
*Chiquita Canyon Landfill Master Plan Revision*

KOP 3 – Existing view of the Proposed Project site looking northwest from the entrance of Valencia Travel Village.

**Figure VS-6.**
**KOP 3**
**Valencia Travel Village**
*Chiquita Canyon Landfill*
*Master Plan Revision*

KOP 8 – Existing view of the Proposed Project site looking east from the entrance to the Del Valle Emergency Training Center along Chiquito Canyon Road.

**Figure VS-7.**
**KOP 8**
**Chiquito Canyon Road at Fire Training Camp**
*Chiquita Canyon Landfill Master Plan Revision*

KOP 8 – Simulated view of the Proposed Project site looking east from the entrance to the Del Valle Emergency Training Center that depicts the view as it would appear at the end of the operational phase.

**Figure VS-8.**
**KOP 8**
**Chiquito Canyon Road at Fire Training Camp**
*Chiquita Canyon Landfill Master Plan Revision*

KOP 8 – Simulated view of the Proposed Project site as it would appear at the end of the operational phase that includes cumulative projects development, looking east from the entrance to the Del Valle Emergency Training Center.

**Figure VS-9.**
**KOP 8**
**Chiquito Canyon Road at Fire Training Camp**
*Chiquita Canyon Landfill Master Plan Revision*

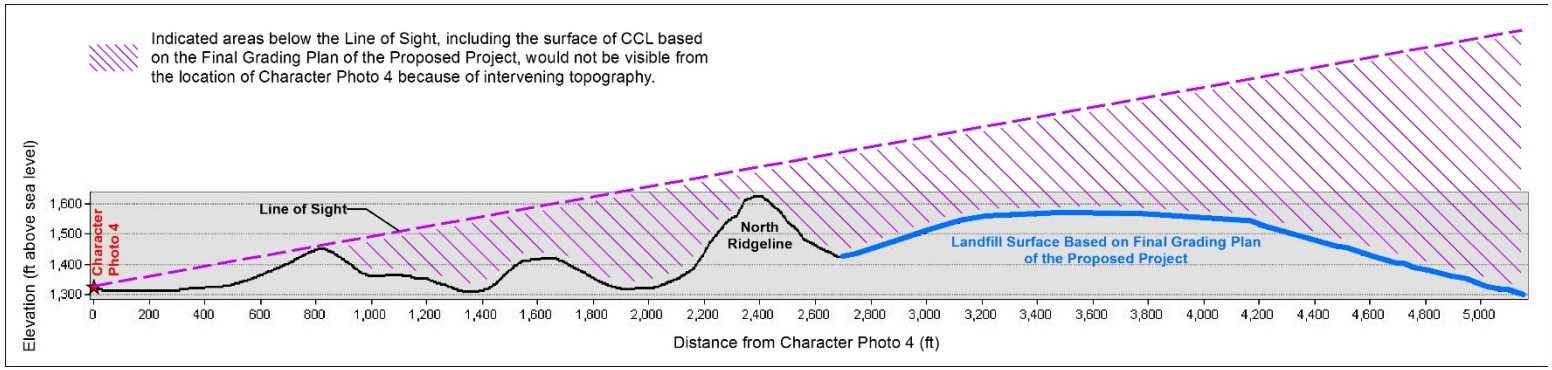
KOP 9 – Existing view of the Proposed Project site looking northwest from the proposed future Homestead Village, which is part of the Newhall Ranch Specific Plan.

**Figure VS-10.**
**KOP 9**
**Homestead Village**
*Chiquita Canyon Landfill*
*Master Plan Revision*

KOP 9 – Simulated view of the Proposed Project site looking northwest from the proposed future Homestead Village that depicts the view as it would appear at the end of the operational phase.

**Figure VS-11.**
**KOP 9**
**Homestead Village**
*Chiquita Canyon Landfill*
*Master Plan Revision*

Character Photo 4 – Panoramic view from the proposed future Sterling Ranch Estates development looking south toward the Chiquita Canyon Landfill. Steep slopes block views of the landfill.




Character Photo 4 – Line of sight diagram depicting the view from the location of Character Photo 4 looking south toward the Chiquita Canyon Landfill. Steep slopes block views of the landfill.

**Figure VS-12.**
**Character Photo 4**
**Sterling Ranch Estates**
*Chiquita Canyon Landfill*
*Master Plan Revision*

# Summary of Biological Surveys Conducted at Chiquita Canyon Landfill

PREPARED FOR: Chiquita Canyon Landfill

PREPARED BY: CH2M HILL

DATE: October 2016

This technical memorandum outlines the biological surveys and associated results that have been conducted at Chiquita Canyon Landfill (CCL) Master Plan Revision (Proposed Project), which is located on the north side of State Route 126 (SR-126), west of Interstate 5 (I-5) in the Santa Clarita Valley area of Los Angeles County.

## Biological Surveys

A comprehensive list of biological sampling that was conducted at the Project site is provided in Table 1-1.

Table 1-1. Comprehensive List of Sampling Performed at the Project Site

| Biologist Affiliation | Sampling Purpose | Sampling Dates |
|---|---|---|
| CH2M HILL | Avian Surveys | April 3, 2002 |
| CH2M HILL | Amphibian Surveys | April 3, May 14, and 24, 2002 |
| CH2M HILL | Reptile Surveys | April 3 and May 26, 2002 |
| CH2M HILL | California Gnatcatcher Surveys | May 16, 31, June 6, 13, 20, and 27, 2002 |
| CH2M HILL | Bat Surveys | May 14 and 24, 2002 |
| CH2M HILL | Special-Status Plant Survey | May 24, 31, and June 28, 2002 |
| CH2M HILL | Vegetation Mapping | June 28, 2002 |
| CH2M HILL | Vegetation Monitoring | December 21-22, 2004 |
| CH2M HILL | Vegetation Mapping | September 28, 2005 |
| CH2M HILL | Vegetation Monitoring | July 27, 2007 |
| CH2M HILL | Surface Waters Delineation | December 3-5, 2007 |
| CH2M HILL | Vegetation Monitoring | December 3-4, 2007 |
| CH2M HILL | Vegetation Monitoring | October 13-14, 2008 |
| CH2M HILL | Vegetation Monitoring | September 1-2, 2009 |
| CH2M HILL | Vegetation Mapping | June 9, 2010 |
| CH2M HILL | Vegetation Monitoring | November 15-16, 2010 |
| CH2M HILL | Vegetation Monitoring | September 26-28, 2011 |
| CH2M HILL | Vegetation Assessment | August 4-5 and October 14, 2011 |
| CH2M HILL | Vegetation Monitoring | September 25-26, 2012 |
| CH2M HILL | Sediment Basin Survey | September 30, 2013 |

Table 1-1. Comprehensive List of Sampling Performed at the Project Site

| Biologist Affiliation | Sampling Purpose | Sampling Dates |
|---|---|---|
| CH2M HILL | Reconnaissance Species Survey and Vegetation Mapping | April 14, 2015 |
| CH2M HILL | Sediment Basin Survey | September 10, 2015 |
| CH2M HILL | Vegetation Mapping | January 11 - February 4, 2016 |
| DMEC | Rare Plant Surveys | April 12-19, 2016 |
| DMEC | Rare Plant Surveys | July 18-21, 2016 |
| CH2M HILL | Sediment Basin Survey | September 13, 2016 |

## Observed Species within the Project Boundary

A comprehensive list of observed wildlife species is provided in Table 1-2 and plant species document within the Project area are shown in Table 1-3.

Table 1-2. List of Wildlife Species Observed at the Project Site

| Common Name | Scientific Name |
|---|---|
| **Birds** | |
| Cooper's hawk | *Accipiter cooperii* |
| White-throated swift | *Aeronautes saxatalis* |
| Tricolored Blackbird | *Agelaius tricolor* |
| Rufous-crowned sparrow | *Aimophila ruficeps* |
| Western scrub-jay | *Aphelocoma californica* |
| Short-Eared Owl | *Asio flammeus* |
| Great horned owl | *Bubo virginianus* |
| Red-tailed hawk | *Buteo jamaicensis* |
| California quail | *Callipepla californica* |
| Anna's hummingbird | *Calypte anna* |
| Costa's hummingbird | *Calypte costae* |
| Lesser goldfinch | *Carduelis psaltria* |
| House finch | *Carpodacus mexicanus* |
| Turkey vulture | *Cathartes aura* |
| Wrentit | *Chamaea fasciata* |
| Lark sparrow | *Chondestes grammacus* |
| Common raven | *Corvus corax* |
| Horned lark | *Eremophila alpestris* |
| California horned lark | *Eremophila alpestris actia* |
| Prairie falcon | *Falco mexicanus* |
| Bullock's oriole | *Icterus bullockii* |
| Loggerhead Shrike | *Lanius ludovicianus* |
| Gull | *Larus* sp. |

Table 1-2. List of Wildlife Species Observed at the Project Site

| Common Name | Scientific Name |
|---|---|
| Northern mockingbird | *Mimus polyglottos* |
| Ash-throated flycatcher | *Myiarchus cinerascens* |
| Cliff swallow | *Petrochelidon pyrrhonata* |
| Phainopepla | *Phainopepla nitens* |
| Nuttall's woodpecker | *Picoides nuttallii* |
| California towhee | *Pipilo crissalis* |
| Spotted towhee | *Pipilo maculatus* |
| Bushtit | *Psaltriparus minimus* |
| Rock wren | *Salpinctes obsoletus* |
| Black phoebe | *Sayornis nigricans* |
| Northern rough-winged swallow | *Stelgidopteryx serripennis* |
| Bewick's wren | *Thryomanes bewickii* |
| California thrasher | *Toxostoma redivivum* |
| Western kingbird | *Tyrannus verticalis* |
| Mourning dove | *Zenaida macroura* |
| **Mammals** | |
| Coyote | *Canis latrans* |
| Bobcat | *Lynx rufus* |
| Dusky-footed woodrat | *Neotoma fuscipes* |
| Mule deer | *Odocoileus hemionus* |
| Deer mouse | *Peromyscus maniculatus* |
| Raccoon | *Procyon lotor* |
| Desert cottontail | *Sylvilagus audubonii* |
| Brush rabbit | *Sylvilagus bachmani* |
| Botta’s pocket gopher | *Thomomys bottae* |
| Gray fox | *Urocyon cinereoargenteus* |
| **Amphibians** | |
| Western spadefoot | *Spea hammondii* |
| **Reptiles** | |
| Western rattlesnake | *Crotalus viridis* |
| Western whiptail | *Cnemidophorus tigris* |
| Western diamondback rattlesnake | *Crotalus atrox* |
| Coachwhip | *Masticophus flagellum* |
| San Diego gopher snake | *Pituophis melanoleucus annectens* |
| Western fence lizard | *Sceloporus occidentalis* |
| Side-blotched lizard | *Uta stansburiana* |

Table 1-2. List of Wildlife Species Observed at the Project Site

| Common Name | Scientific Name |
|---|---|
| **Invertebrates** | |
| Behr's metalmark | *Apodemia virgulti* |
| Checkered-skipper | *Pyrgus communis* |

Table 1-3. List of Plant Species Observed at the Project Site

| Scientific Name | Common Name |
|---|---|
| *Abutilon theophrasti* | Velvet leaf |
| *Achyrachaena mollis* | Blow wives |
| *Acmispon glaber* var. *glaber* | Deerweed |
| *Acmispon wrangelianus* | Chilie lotus |
| *Acourtia microcephala* | Sacapellote |
| *Adenostoma fasciculatum* var. *f.* | Chamise |
| *Ailanthus altissima* | Tree-of-Heaven |
| *Ambrosia acanthicarpa* | Annual burweed |
| *Ambrosia psilostachya* | Western ragweed |
| *Amsinckia intermedia* | Rancher's fire |
| *Amsinckia menziesii* var. *menziesii* | Common fiddleneck |
| *Amsinckia tessellata* var. *tessellata* | Devil's lettuce |
| *Antirrhinum* sp. | Snapdragon |
| *Apiastrum angustifolium* | Wild celery |
| *Artemisia californica* | California sagebrush |
| *Artemisia douglasiana* | Mugwort |
| *Artemisia dracunculus* | Tarragon |
| *Artemisia tridentate* ssp. *tridentata* | Great basin sagebrush |
| *Asclepias fascicularis* | Narrowleaf milkweed |
| *Aster* spp. | Aster |
| *Astragalus cf. oxyphysus* | Stanislaus milkvetch |
| *Astragalus trichopodus* | Locoweed |
| *Astragalus trichopodus* var. *phoxus* | Antisell three-pod milkvetch |
| *Astragalus trichopodus* var. *trichopodus* | Three-pod milkvetch |
| *Atriplex canescens* var. *canenscens* | Four wing saltbush |
| *Atriplex lentiformis* | Quail bush |
| *Atriplex lentiformis* var. *breweri* | Brewer's saltbrush |
| *Amsinckia* sp. | Fiddleneck |
| *Atriplex semibaccata* | Australian saltbush |
| *Avena barbata* | Slender wild oats |
| *Avena fatua* | Wild oats |

Table 1-3. List of Plant Species Observed at the Project Site

| Scientific Name | Common Name |
|---|---|
| *Avena* spp. | Wild oat |
| *Baccharis pilularis* ssp. *consanguinea* | Coyote bush |
| *Baccharis salicifolia* | Mulefat |
| *Bassia hyssopifolia* | Five-hook |
| *Brassica nigra* | Black mustard |
| *Brickellia nevinii* | Nevin's brickellbush |
| *Bromus diandrus* ssp. *diandrus* | Ripgut brome |
| *Bromus carinatus* var. *carinatus* | California brome |
| *Bromus hordeaceus* | Soft chess |
| *Bromus madritensis* ssp. *rubens* | Red brome |
| *Bromus tectorum* | Cheat grass |
| *Calochortus clavatus* var. *clavatus* | Club-haired mariposa lily |
| *Calochortus clavatus* var. *gracilis* | Slender mariposa lily |
| *Calochortus weedii* | Weed's mariposa lily |
| *Calystegia macrostegia* var. *cyclostegia* | Coastal scrub morning-glory |
| *Calystegia peirsonii* | Peirson's morning glory |
| *Camissonia* sp. | Suncups |
| *Carduus pycnocephalus* ssp. *P.* | Italian thistle |
| *Castilleja affinis* ssp. *affinis* | Lay-and-Collie's Indian paintbrush |
| *Castilleja exserta* ssp. *exserta* | Purple owl's clover |
| *Ceanothus pauciflorus [C. vestitus]* | Few-flowered ceanothus |
| *Centaurea melitensis* | Tocalote |
| *Cercocarpus betuloides* | Mountain mahogany |
| *Cercocarpus betuloides* var. *betuloides* | Birchleaf mountain mahogany |
| *Chaenactis glabriuscula* var. *glabriuscula* | Yellow pincushion |
| *Chaenactis glabriuscula* var. *megacephala* | Common yellow pincushion |
| *Chamaesyce albomarginata* | Rattlesnake spurge |
| *Chamaesyce polycarpa* var. *polycarpa* | Golondrina |
| *Chenopodium* spp. | Chenopodium |
| *Chenopodium album* var. *album* | Lambsquarters |
| *Chenopodium californicum* | California goosefoot |
| *Chilopsis linearis* ssp. *arcuata* | Desert willow |
| *Chorizanthe staticoides* var. *staticoides* | Turkish rugging |
| *Cirsium occidentale* var. *occidentale* | Cobweb thistle |
| *Clarkia unguiculata* | Woodland clarkia |
| *Corethroygyne filaginifolia* | California cudweed-aster |
| *Cortaderia selloana* | Pampas grass |
| *Croton setiger* | Dove weed |

Table 1-3. List of Plant Species Observed at the Project Site

| Scientific Name | Common Name |
|---|---|
| *Cryptantha decipiens* | Gravel forget-me-not |
| *Cryptantha intermedia* var. *intermedia* | Common forget-me-not |
| *Cryptantha microstachys* | Tejon forget-me-not |
| *Cryptantha muricata* var. *jonesii* | Jones' forget-me-not |
| *Cryptantha muricata* var. *muricata* | Prickly forget-me-not |
| *Cryptantha* sp. | a forget-me-not w/large fls |
| *Cucurbita foetidissima* | Coyote melon |
| *Cuscuta californica* var. *californica* | California dodder |
| *Cuscuta* sp. | Dodder |
| *Datura wrightii* | Jimson weed |
| *Daucus pusillus* | Rattlesnake weed |
| *Deinandra fasciculata* | Clustered tarplant |
| *Delphinium parryi* ssp. *parryi* | Parry larkspur |
| *Descurainia pinnata* var. | Tansy mustard |
| *Dichelostemma capitatum* ssp. *Capitatum* | Blue dicks |
| *Diplacus longiflorus* | Sticky bush monkeyflower |
| *Dudleay lanceolate* | Lanceleaf live-forever |
| *Elymys condensatus* | Giant wild rye |
| *Emmenanthe penduliflora* var. *p.* | Whispering bells |
| *Encelia californica* | California bush sunflower |
| *Encelia farinosa* | Brittlebush |
| *Encelia virginensis* | Virgin river brittlebush |
| *Eremocarpus setigerus* | Doveweed |
| *Ericameria palmeri* var. *pachylepis* | Palmer goldenbush |
| *Ericameria pinifolia* | Pine bush |
| *Erigeron foliolosus* var. *foliolosus* | Slender fleabane |
| *Eriodictyon crassifolium* var. *nigrescens* | Thickleaf yerba santa |
| *Eriogonum elongatum* | Long-stem buckwheat |
| *Eriogonum fasciculatum* | Buckwheat |
| *Eriogonum fasciculatum* var. *foliolosum* | Leafy Calif. wild buckwheat |
| *Eriophyllum confertiflorum* var. *c.* | Golden yarrow |
| *Erodium cicutarium* | Redstem filaree |
| *Eucalyptus camaldulensis* | River red gum |
| *Eucalyptus* sp. | Eucalyptus |
| *Eucrypta chrysanthemifolia* | Common eucrypta |
| *Eulobus californicus* | California mustard primrose |
| *Galium angustifolium* ssp. *Angustifolium* | Chaparral bedstraw |
| *Gilia ahilleifolia* ssp. *Multicaulis* | Many-stemmed Calif. gilia |

Table 1-3. List of Plant Species Observed at the Project Site

| Scientific Name | Common Name |
|---|---|
| *Gilia angelensis* | Chaparral gilia |
| *Gilia capitate* ssp. *abrotanifolia* | Blue Field gilia |
| *Hazardia squarrosus* var. *squarrosa* | Sawtooth goldenbush |
| *Helianthus c.f. californicus* | California sunflower |
| *Heliotropium curassavicum* | Alkali heliotrop |
| *Hesperoyucca whipplei* var. *cespitosa* | Clumping Our Lord's Candle |
| *Heteromeles arbutifolia* | Toyon |
| *Heterotheca grandiflora* | Telegraph weed |
| *Heterotheca sessiliflora* ssp. *echioides* | Bristly golden-aster |
| *Heterotheca sessiliflora* ssp. *fastigiata* | Erect golden-aster |
| *Heterotheca sessiliflora* ssp. *latifolia* | False golden-aster |
| *Hyptis emoryi* | Desert lavendar |
| *Hirschfeldia incana* | Summer mustard |
| *Hordeum murinum* ssp. *glaucum* | Summer barley |
| *Hordeum murinum* ssp. *leporinum* | Hare barley |
| *Hordeum murinum* | Hare barley |
| *Isocoma menziesii* var. *menziesii* | Coastal goldenbush |
| *Isocoma menziesii* var. *vernonioides* | Coastal goldenbush |
| *Isocoma* sp. | Goldenbush |
| *Keckiella cordifolia* | Heartleaf penstemon |
| *Lactuca serriola* | Prickly wild lettuce |
| *Lepidospartum squamatum* | Scalebroom |
| *Lessingia filaginifolia* | Cudweed aster |
| *Leymus condensatus* | Giant wild rye |
| *Linanthus californicus* | Prickly phlox |
| *Logfia filaginoides* | California cottonrose |
| *Logfia gallica* | Daggerleaf cottonrose |
| *Lolium* sp. | Rye grass |
| *Lupinus bicolor* | Sky lupine |
| *Lupinus microcarpus* var. *densiflorus* | Chick lupine |
| *Lupinus* spp. | Lupine |
| *Lupinus succulentus* | Fleshy lupine |
| *Lupinus truncatus* | Truncated-leaved lupine |
| *Malacothamnus fasciculatus* var. *f.* | Chaparral bushmallow |
| *Malacothrix saxatilis* var. *commutata* | Cliff desert dandelion |
| *Malacothrix saxatilis* var. *tenuifolia* | Tenuated cliff Desert dandelion |
| *Malosma laurina* | Laurel sumac |
| *Malva parviflora* | Cheeseweed |

Table 1-3. List of Plant Species Observed at the Project Site

| Scientific Name | Common Name |
|---|---|
| *Marah fabacea* | California man-root |
| *Marah macrocarpa* | Chilicothe |
| *Marah macrocarpus* | Wild cucumber |
| *Marrubium vulgare* | White horehound |
| *Medicago polymorpha* | Bur-clover |
| *Melica imperfecta* | Coast melic grass |
| *Melilotus albus* | White sweetclover |
| *Melilotus indicus* | Yellow sweetclover |
| *Mentzelia montana* | Montane stickleaf |
| *Mimulus* sp. | Monkey flower |
| *Mirabilis laevis* var. *crassifolius* | California wishbone bush |
| *Muhlenbergia microsperma* | Littleseed muhly |
| *Nicotiana glauca* | Tree tobacco |
| *Opuntia basilaris* var. *basilaris* | Beavertail cactus |
| *Opuntia littoralis* | Coastal prickly-pear |
| *Papaver heterophyllum* | Wind poppy |
| *Parkinsonia aculeate* | Palo verde |
| *Pectocarya cf. penicillata* | Winged combseed |
| *Pellaea andromedifolia* | Coffe fern |
| *Pertoma arborea* var. *arborea* | Bladderpod |
| *Persicaria lapathifolia* | Willow water-weed |
| *Phacelia cf. cicutaria* | Caterpillar phacelia |
| *Phacelia distans* | Common phacelia |
| *Phacelia ramosissima* | Branching phacelia |
| *Phacelia tanacetifolia* | Tansy phacelia |
| *Phacelia viscida* var. *viscida* | Sticky phacelia |
| *Phacelia* sp. | Phacelia |
| *Pinus halepensis* | Aleppo pine |
| *Pinus* spp. | Pine |
| *Plagiobothrys canescens* | Canescent popcornflower |
| *Plantago erecta* | California plantain |
| *Plantago ovata* | Woolly plantain |
| *Platanus racemosa* | California sycamore |
| *Poa secunda* ssp. *secunda* | One-sided bluegrass |
| *Populus fremontii* | Fremont cottonwood |
| *Pseudognaphalium californicum* | Green everlasting |
| *Pseudognaphalium leucocephalum* | White cudweed |
| *Psilocarphus tenellus* | Slender wolly marbles |

Table 1-3. List of Plant Species Observed at the Project Site

| Scientific Name | Common Name |
|---|---|
| *Pterostegia drymarioides* | Fairy mist |
| *Quercus agrifolia* var. *agrifolia* | Coast live oak |
| *Quercus berberidifolia* | California scrub oak |
| *Quercus lobata* | Valley oak |
| *Rafinesquia californica* | California chicory |
| *Raphanus sativa* | Wild raddish |
| *Rhamnus ilicifolia* | Hollyleaf redberry |
| *Rhus aromatic* | Skunkbrush |
| *Rhus integrifolia* | Lemonade berry |
| *Rhus ovata* | Sugar bush |
| *Rhus trilobata* | Squawbush |
| *Ricinus communis* | Castor bean |
| *Salix exigua* | Narrowleaf willow |
| *Salix gooddingii* | Black willow |
| *Salix laevigata* | Yellow willow |
| *Salsola tragus* | Russian thistle |
| *Salvia apiana* var. *apiana* | White sage |
| *Salvia columbariae* | Chia |
| *Salvia leucophylla* | Purple sage |
| *Salvia mellifera* | Black sage |
| *Sambucus mexicana* | Mexican elderberry |
| *Sambucus nigra* ssp. *Caerulea* | Blue elderberry |
| *Schinus molle* | Brazillian pepper tree |
| *Schismus barbatus* | Mediterranean grass |
| *Selaginella bigelovii* | Bigelow spike-moss |
| *Sisymbrium irio* | London rocket |
| *Solanum xanti* | Chaparral nightshade |
| *Sonchus asper* var. *asper* | Prickly wild lettuce |
| *Sonchus oleraceus* | Common wild lettuce |
| *Stephanomeria virgata* | Wand chicory |
| *Stephanomeria virgate* ssp. *pleurocarpa* | Twiggy wreath plant |
| *Stillingia linearifolia* | Narrowleaf stillingia |
| *Stipa coronate* | Giant needlegrass |
| *Stipa miliacea* var. *miliacea* | Smilo grass |
| *Stipa pulchra* | Purple needlegrass |
| *Stipa speciosa* | Desert needlegrass |
| *Tamarix ramosissima* | Saltcedar |
| *Thysanocarpus curvipes* | Common fringe pod |

Table 1-3. List of Plant Species Observed at the Project Site

| Scientific Name | Common Name |
|---|---|
| *Toxicodendron diversilobum* | Western poison oak |
| *Tribulus terrestris* | Puncture vine |
| *Trichostema lanceolatum* | Vinegar weed |
| *Trifolium* spp. | a clover |
| *Uropappus lindleyi* | Silver puffs |
| *Vulpia microstachys* | Six-weeks fescue |
| *Washingtonia robusta* | Mexican fan palm |
| *Yabea microcarpa* | Yabea |
| *Yucca whipplei* | Our Lord's candle |

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June 6, 2014

**Steve Cassulo**
Chiquita Canyon Landfill
Waste Connections Inc.
29201 Henry Mayo Drive
Castaic, CA 91384

RE: **Chiquita Canyon Landfill Master Plan Revision**

Dear Mr. Cassulo:

Pursuant to the request of Chiquita Canyon Landfill, an oak tree field study evaluation has been conducted by this office to ascertain base line data in regard to native oak tree resources located at 29201 Henry Mayo Drive, City of Castaic. This project study is mandated by the Los Angeles County Oak Tree Ordinance.

The field study was conducted by sb horticulture (sbh) in early April 2012 and early June 2014. Specifications and photographs are included in this report related to individual tree species, size and overall condition.
The four oak trees evaluated are proposed for removal at client request due to future grading considerations.

Respectfully submitted by,

**Sean Brown**

## sb horticulture

## Table of Contents

## Survey Methodology:

- Reference material used:
  - Oak tree location map supplied by Pinnacle Land Surveying, Inc.

- Tree diameters were field measured approximately 4.5 feet above grade with a LUFKIN diameter tape measure. This is referred to as DBH (Diameter at Breast Height). Where low branching or other factors interfered with measuring the tree diameter at 4.5 feet the measurement was moved and noted in the report.

- Tree height was field estimated.

- Driplines were measured in a minimum of four (4) compass directions.

- Trees were tagged with metal discs for identification and location purposes.

- The surveyed trees were photographed with a digital camera to facilitate reader ease in identification. These pictures are for reference only and should not be used to ascertain actual condition and size of the surveyed tree specimens.

  It is important to note that the information included in this report was collected during an above ground visual observation consistent with professional standards. No extensive internal tree or subsurface investigation was made. Trees are living entities and subject to stress and disease that may not be apparent during cursory inspection. Therefore, no guarantee is given or implied that any of the trees will survive planned construction activity and/or relocation.

## Rating Review:

Individual species have been field rated in regard to form and health based on an A, B, C, D, F scale. The letter E is not utilized as a rating classification. Trees were also given a vigor rating as a percentage separate from the overall grade of the tree.

**A** That tree is rated as an excellent specimen and needs no special attention at this time as long as construction and development impacts do not negatively effect its environment.

**B** That condition of tree is average to slightly above average with regard to health and structure. Tree may have indicated possible need for minor pruning (deadwood removal). Implementing reasonable preservation procedures and practices, tree has excellent potential to survive planned development if construction guidelines and post-construction maintenance are followed.

**C** That condition of tree indicates a possible need for moderate corrective maintenance. Tree may be in good physiological condition while displaying one or more structural defects. Tree may display symptoms/signs of stress or decline due to adverse abiotic and/or biotic conditions.

**D** That tree has serious problems in regard to health, disease, or structure that it may not be possible to be remedied through reasonable preservation procedures and practices.

## Overall Tree Conditions

Four (4) Los Angeles County ordinance sized oak trees were documented within the proposed project area. Two (2) are native trees- and both are growing adjacent to an abandoned field previously used for agricultural purposes. The other two trees are non native landscape trees growing within landscaped areas of the existing landfill facility.

It should be noted that one (1) heritage sized dead oak tree was observed adjacent to tree # 1. Arborist Sean Brown met onsite with representatives Bill Romo and Joseph Brunet from the Los Angeles County Forestry Division's Environmental Review Unit to confirm this oak tree was dead in late 2011. Because the tree is no longer living, it is not included in this August 2012 report. It is, however, still onsite and still tagged with the #87.

**Survey Results**:

- **4** Los Angeles County ordinance sized oak trees were documented within the proposed project area.
  - 3 Quercus agrifolia (Coast Live Oak)
  - 1 Quercus lobata (Valley Oak)

Impact summary

| | Tree tag #'s |
|---|---|
| Proposed Removal | **1,2,3,89** |
| Encroachment | |
| No proposed impact | |
| **Total trees in report** | **four** |

***Oak Tree Data***

| Tag # | Species | Impact Status | DBH in inches | Grade | Vigor | Structure | Height |
|---|---|---|---|---|---|---|---|
| **1** | Valley Oak *Quercus lobata* | Remove | ( 10,5 ) | B | Good | Fair to Good | 20'-30' |
| **2** | Coast Live Oak *Quercus agrifolia* | Remove | ( 10,5 ) | B- | Good | Fair | 15'-20' |
| **3** | Coast Live Oak *Quercus agrifolia* | Remove | ( 11.5,6.5 ) | B- | Good | Fair | 15'-20' |
| **89** | Coast Live Oak *Quercus agrifolia* | Remove | ( 18.5,17,14 ) | D+ | Poor | Poor | 25'-30' |

**Tree Notes**

| Tag # | Tree comments |
|---|---|
| 1 | Tree is a native specimen to the site. Tree is a multi-trunk. Trunk base slightly buried by natural fill from adjacent slope. Growing adjacent to large dead oak tree to west. |
| 2 | This tree is non native to the site and was planted as part of the installed landscape. Low branching. Some included bark. Tree is multi trunked. Low branching with canopy in contact with ground. Excessive branch production at point of codominance on larger trunk- may be result of precious damage to trunk. |
| 3 | This tree is non native to the site and was planted as part of the installed landscape. Low branching with canopy in contact with ground. Trunk base slightly buried by fill. Multi-trunked. Tree is growing within a partially landscaped area directly adjacent to a paved parking/storage facility. |
| 89 | Tree is a native specimen to the site. Multi-trunked. Tree is growing in natural area. Trunk base is heavily buried by adjacent natural slope failure. One dead trunk on ground. Exfoliating bark. Middle trunk lying on west trunk. Multiple broken large limbs. Heavy trunk damage and decay. Poor condition of tree is most likely a result of heavy fire damage and excess soil fill on trunk. |

## Canopy Measurements

### Canopy Dripline From Trunk in Feet

| Tag Number | N | E | S | W |
|---|---|---|---|---|
| **1** | 14 | 10 | 14 | 18 |
| **2** | 9 | 9 | 11 | 11 |
| **3** | 9 | 10 | 9 | 14 |
| **89** | 12 | 12 | 18 | 23 |

## Oak Tree Mitigation

- Required oak tree mitigation per Los Angeles County Oak Tree Ordinance:
  - 6 (two) 15 gallon Quercus agrifolia
  - 2 (two) 15 gallon Quercus lobata

  **8** total mitigation trees. (Replacement to removal ratio--- 2:1)

- Recommended oak tree mitigation:
  - 11 (eleven) 15 gallon Quercus agrifolia
  - 5 (five) 15 gallon Quercus lobata

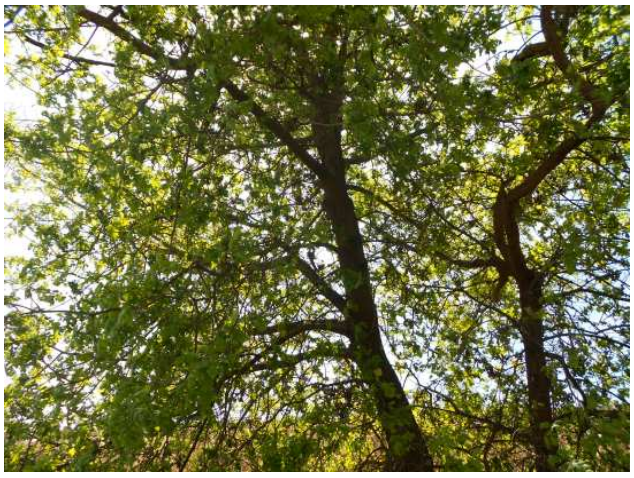
  **16** total mitigation trees.

  This is only a recommendation. The final mitigation requirements will be determined by the Los Angeles County Forestry Department.

  Proposed mitigation tree planting site- These mitigation trees are proposed to be within the existing property in a natural area as detailed below (see Appendix B). Other alternative natural areas also exist within the project boundary. These are proposals only. The final mitigation requirements will be determined and approved by the Los Angeles County Forestry Division's Environmental Review Unit.

**Tree Photographs**

Tree #1



**Tree Photographs continued**

Tree #2

**Tree Photographs continued**

Tree #3

**Tree Photographs continued**

Tree #89

**Tree Photographs continued**

Tree #89

## Appendix A

## Oak Tree Mitigation Proposed Location

## Appendix A

## Oak Tree Mitigation Proposed Location

## Appendix B

## Aerial Photo of Existing Oak Trees Locations

## Appendix C

## Report Glossary

- **Arboriculture:** The science and art of caring for trees, shrubs and other woody plants.
- **Arborist:** A person possessing the technical competence through experience and related training to provide for or supervise the management of trees or other woody plants.
- **Cavity:** An open and exposed area of wood, where the bark is missing and internal wood has been decayed and dissolved.
- **Codominant:** Equal in size and relative importance, usually associated with either trunks/stems or limbs branches in the crown.
- **Crotch:** The point or angle at which two branches (or a branch and a leader) meet.
- **DBH –Diameter Breast Height**: The diameter of the trunk of a tree measured at 4.5 feet above natural grade.
- **Decay:** Progressive deterioration of organic tissues, usually caused by fungal or bacterial organisms, resulting in loss of cell structure, strength, and function. In wood, the loss of structural strength.
- **Defoliation:** Loss of leaves.
- **Dripline:** The width of the crown, as measured by the lateral extent of the foliage.
- **"Encroachment" as it pertains to the LA County Oak Tree Ordinance:** Proposed construction, excavation, grading and/or landfill within the Protective Zone.
- **Epicormic growth:** Growth that arises from latent buds that occur on stems, branches, and at the base of trees. This type of growth is more vigorous and weaker than normal growth
- **Foliage:** The live leaves or needles of the tree; the plant part primarily responsible for photosynthesis.
- **Heritage Oak Tree:** any oak tree measuring 36" or more in diameter, measured 4½ feet above natural grade.
- **Mulch:** Any material such as wood chips, straw, sawdust, leaves, and stone that is spread on the surface of the soil to protect the soil and plant roots from the effects of raindrops, soil crusting, freezing, and evaporation.
- **"Protective Zone" as it pertains to the LA County Oak Tree Ordinance:** "The Protected Zone shall mean that area within the dripline of an oak tree and extending there from to a point at least 5 feet outside the dripline or 15 feet from the trunk, whichever distance is greater."
- **Pruning:** Selective removal of woody plant parts of any size, using saws, pruners, clippers, or other pruning tools.
- **Root ball:** Area containing the main root structure.
- **Root crown:** Area at the base of a tree where the roots and stem merge.
- **Root System:** The portion of the tree containing the root organs, including buttress roots, transport roots, and fine absorbing roots; all underground parts of the tree.
- **Root Zone:** The area and volume of soil around the tree in which roots are normally found. May extend to three or more times the branch spread of the tree, or several times the height of the tree.
- **Shaded out:** Slower or stunted growth due to lack of sufficient light.
- **Species:** The main category of taxonomic classification into which living organisms are subdivided, comprising a group of similar individuals having a number of correlated characteristics.
- **Stress:** Unfavorable deviation from normal. The action on a body of any system of balanced forces whereby strain or deformation results. In arboriculture, the adverse alteration of tree health by abiotic or biotic factors.
- **Sucker:** Vigorous upright epicormic (Adventitious) shoot rising from the base of the trunk or just below the soil surface.
- **Re-growth/trunk sprout:** Growth rising from the base of damaged or cut trees/shrubs. Epicormic type growth.
- **Vigor:** Overall health; the capacity to grow and resist physiological stress.
- **Visual Tree Assessment:** Method of evaluating structural defects and stability in trees.

**Appendix D Oak Tree Location Plan**

WOLCOTT OAK TREE IMPACT EXHIBIT

JUNE 1, 2012



# EXISTING PRIMARY CANYON LANDFILL (CLOSED)

SOUTHERN CALIFORNIA EDISON

LEACHATE STORAGE/ TREATMENT/ LOADOUT FACILITY

NEW ENTRANCE FACILITIES AREA

NEW SCALES & GATEHOUSE

ADMINISTRATION BLDG.

PUBLIC DROP-OFF

#3 OAK TREE PROTECTIVE ZONE

EXISTING OAK TREE TO REMOVE/RELOCATE

EXISTING OAK TREE TO BE REMOVED

#2

OAK TREE PROTECTIVE ZONE

EXISTING OAK TREE TO BE REMOVED

GRADING LIMITS (TYPICAL)

#89

OAK TREE PROTECTIVE ZONE

EXISTING OAK TREE TO REMOVE/RELOCATE

#1

OAK TREE PROTECTIVE ZONE

BENCH

900 TOP DIKE

EXISTING 36" CSP STORM DRAIN

1125 1100 1075 1050 1025 1000 975 950

HENRY MAYO DRIVE

LICENSED LAND SURVEYOR DANNY T. DAVIS L.S.7586 EXPIRES 12/31/13 STATE OF CALIFORNIA

GRAPHIC SCALE

80' 0' 40' 80' 160'

( IN FEET )

1 inch = 80 ft.

PINNACLE
Land Surveying, Inc.
28348 CONSTELLATION ROAD
SUITE 800
VALENCIA, CA 91355
TEL (661) 254-1928

# WOLCOTT OAK TREE IMPACT EXHIBIT

JUNE 1, 2012



GRAPHIC SCALE

20' 0' 10' 20' 40'

( IN FEET )
1 inch = 20 ft.

975

EXISTING OAK TREE TO BE REMOVED

OAK TREE PROTECTIVE ZONE

#1

EXISTING 36" CSP CULVERT

#2

EXISTING OAK TREE TO BE REMOVED

OAK TREE PROTECTIVE ZONE

1025

1000

EXISTING OAK TREE TO BE REMOVED

OAK TREE PROTECTIVE ZONE

#3

GRADING LIMITS (TYPICAL)

EXISTING OAK TREE TO BE REMOVED

OAK TREE PROTECTIVE ZONE

#89

965

LICENSED LAND SURVEYOR
DANNY T. DAVIS
L.S.7586
EXPIRES 12/31/13
STATE OF CALIFORNIA

PINNACLE
Land Surveying, Inc. 28348
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APPENDIX E3

# Draft Revegetation, Rare Plant Relocation, and Oak Tree Performance Criteria

## E3.1 Introduction

Biological Resource Mitigation Measures BR-1, BR-9, and BR-15, require development of the following plans, respectively:

- Closure Revegetation Plan
- Rare Plant Relocation Plan
- Oak Tree and Oak Woodland Mitigation Plan

Prior to authorization of ground disturbing impacts, these plans will be developed consistent with performance criteria specified in this Appendix, and will require approval of LADRP and/or CDFW. Additional data which will support the development of these plans will include: precise incremental impacts to vegetation communities, rare plants, and oak trees and woodlands upon project implementation; final grade upon project completion including slope gradient and aspect; location and design of drainage features; sub- and top-soil covering depth upon project completion; soil characteristics of topsoil upon completion, including texture, pH, nutrient content, and other parameters; availability and adjacency of undisturbed habitats and conditions; and, extent of undisturbed rare plant populations by species and suitability for population enhancement.

## E3.2 Draft Revegetation Performance Criteria

### E3.2.1 Introduction

Vegetation communities impacted by the development of the Project will be replaced by revegetation at the Chiquita Canyon Landfill after closure. Closure shall include placement of appropriate barrier and gas collection technology on the landfill area, and placement of 5 feet of final soil cover on top of this. Once soil cover is in place, revegetation will occur to establish vegetation for erosion control and habitat replacement. The current existing condition is represented in vegetation mapping updated in 2016, as provided in Figure 8-3 of the Partially Recirculated Draft EIR. A total of 13 native alliances, 3 semi-natural (non-native) vegetation alliances, and 4 revegetated alliances have been identified on CCL. Table 8-1 of the Partially Recirculated Draft EIR provides a summary of vegetation alliances present on CCL, the existing acreage, and the anticipated impacts to vegetation alliances.

Revegetation objectives would be to achieve a 1:1 ratio of impacted native, revegetated, and semi-natural habitat to revegetated mitigation land. Shrub and forested communities would be revegetated to shrub and forest alliances, and naturalized non-native grasslands would be seeded with native grassland species. Invasive species would be controlled to less than the target performance criteria threshold.

Table E3-1 provides and defines the proposed metrics that would be used to evaluate site revegetation at CCL. Table E3-2 identifies which metrics would be utilized to evaluate each specific revegetated alliance.

The Closure Revegetation Plan will identify the final objective alliance types, location and acreage of restoration, plant propagule sources and types, planting methods, plant palettes, soil treatments or enhancements, temporary irrigation requirements, and long term monitoring and maintenance requirements. The final Closure Revegetation Plan will be developed and finalized in consultation with LADRP, and will be finalized prior to ground disturbing activities. It would be consistent with performance criteria provided in this document.

## E3.2.2 Baseline Sampling

Vegetation mapping and sampling was conducted at CCL in February and March, 2016. The mapping consisted of preliminary ocular estimates of absolute species composition (including bare ground and litter) on homogenous vegetation stands and delineating stands on large scale aerial photographs (1:2400 scale). Data analysis provided estimates on relative and absolute cover by species, and was used to group homogenous stands into alliances based on Sawyer and Keeler-Wolf (1995).

After preliminary mapping was complete, transects were established in native shrub and herbaceous alliances. Non-native and revegetated alliances were not transected. Transect locations were established by generating random number locations on the map using GIS software along with an associated compass direction within alliances of interest. Transect locations that ventured out of existing alliance boundaries were discarded. Transects were 100 feet, established in the field using a tape while anchoring one end and proceeding in the computer-generated direction. Because of the small patch size and incongruous alliance types longer transects were generally not possible, and several shorter transects were more suitable than single long transects for the mosaic of alliance types and landscape. In general, the number of transects broadly reflected the acreage of the alliance. One herbaceous alliance was small and required a reduced transect length.

Once a transect was established, vegetation composition by species and/or ground cover was documented at a 0.1-foot precision. Data were recorded and analyzed to include absolute cover by species, relative cover by species, percent shrub cover, percent weed and invasive weed cover, and total vegetative cover. All transect data from multiple transects in an alliance were combined for summary statistics.

Upon completion of transect data analysis, alliance mapping was reevaluated to ensure that ocular estimates conducted to provide preliminary mapping accurately characterized alliances when compared with transect data. Some alliances were recoded and/or alliance boundaries were adjusted based on transect data.

Final vegetation mapping at CCL is provided in Figure 8-3 of the Partially Recirculated Draft EIR. A summary of transect data results is provided in Table E3-3. This data provides the reference data for revegetation performance criteria, as discussed below.

## E3.2.3 Revegetation Criteria

Reference sites are regional examples of intact vegetation communities that can reflect target conditions for the revegetation site. The native, intact vegetation communities on CCL that were sampled and are anticipated for impacts may themselves serve as suitable reference sites, as they reflect relatively undisturbed vegetation communities comparable to the conditions throughout the region. The reference site data collected by alliance indicates typical total vegetative cover, species composition, percent shrub cover, and extent of non-native species present (e.g. ubiquitous grasses), and were used to inform the performance criteria for that vegetation type.

Based on the reference site data in Table E3-3, draft performance criteria were developed for each alliance type at CCL proposed for revegetation. Tables E3-4a through 4n provide the draft performance metric value ranges for each alliance that will be revegetated. In general, performance criteria for all alliances target less than 10 percent cover of non-native species (including ubiquitous grasses), and

achieving at least 80 percent of the reference site value for that alliance for parameters such as total vegetative cover or relative shrub cover within the 5-year monitoring period. Interim criteria (e.g. 1 year, 3 years) evaluate whether the revegetation effort is on track to achieve 5 year values.

### E3.2.4 Monitoring and Reporting

Ongoing monitoring and reporting requirements will be detailed in the Closure Revegetation Plan, but will include at a minimum annual sampling of site conditions, including the criteria as specified in Table E3-1. Sampling frequency will be at a minimum one time per year, but during the first 1 – 2 years, additional sampling to identify weed infestations and vegetation conditions would be implemented. Reporting to LADRP would be conducted once per year, with the report developed later in the year to capture all sampling and remediation events conducted through the year. Additional information included in the monitoring reports will include site photographs from established photo stations, records of remediation activities completed and planned for the following year, raw field data from sampling, and an overall discussion of site success towards revegetation.

### E3.2.5 Remediation Measures

Remediation measures would be implemented when revegetation sites do not meet performance criteria at any point. Remediation measures would be adaptively managed; that is, ongoing evaluation of success of remediation measures would be considered in designing or implementing measures to promote success. Where annual monitoring results indicate revegetation sites are not on target to meet performance criteria, remediation measures would be implemented.

The following represents a preliminary list of potential remediation measures. Actual measures would be developed based on site-specific conditions, performance monitoring results, and extent and duration of non-conformance with performance criteria.

- Weed management within revegetation sites including hand removal and/or chemical application;
- Weed management within adjacent sites contributing to weed establishment on revegetation sites;
- Application of mulch or other potential weed barriers where small-scale weed infestation problems are persistent;
- Hydroseed and/or hand seeding where percent cover requirements are not meeting criteria.
- Modification of irrigation rates and/or extension of temporary irrigation where soil water is limiting revegetation success.
- Reconfiguration of planting basins and/or application of mulch in planting basins for greater water retention and weed control.
- Installation of browse protection where significant damage is occurring to revegetation efforts from excessive browse.
- Re-planting as requiring, including re-application of seeds and reinstallation of container stock as needed to meet cover goals.
- Limited application of fertilizer in rare cases where needed to enhance growth based on laboratory tests indicating lack of suitable soil conditions for optimal revegetation.
- Application of other soil amendments (e.g. gypsum) where lab tests suggest soil conditions are constraining revegetation success.
- Alteration of plant propagule methods to optimize revegetation success; for example, modifying from seeding to container stock or cuttings.

- Alteration of which species are planted based on site response.
- Alteration of density of plantings based on site response.
- Offsite mitigation land will be purchased to offset the loss of the portion of shrub and forest vegetation communities that do not meet the success criteria, if necessary, as outlined in Mitigation Measure BR-1.

Annual activities related to remediation of problem conditions, along with intended activities yet to be implemented, would be included in annual monitoring reports.

# E3.3 Draft Rare Plant Mitigation Performance Criteria

## E3.3.1 Introduction

During rare plant surveys in 2016, rare plants were identified at CCL including club-haired Mariposa lily, slender Mariposa lily, and hybrids between these subspecies; and Peirson's morning-glory, California sunflower, narrowleaf Stillingea, and beavertail cactus. Some individuals and populations of these rare plants are within areas of CCL that are proposed for grading and development, and are anticipated to be impacted. Mitigation Measure BR-9 is provided to mitigate for impacts to special-status plants. Other special-status plant species (including any CNPS rare plants designated 1 – 4 or Locally Rare) may occur at CCL and be identified in pre-construction rare plant surveys as required under BR-9 prior to each phase of site development; if found, avoidance or mitigation for impacts to them would also be achieved through BR-9. Figure 8-5 in the Partially Recirculated Draft EIR shows the locations of rare plants at CCL during surveys conducted in 2016 relative to anticipated disturbance limits.

Where avoidance of special-status plant species is possible, it will be achieved through fenced exclusion zones as specified in BR-9. The final grading plan for each cell of CCL will be evaluated for potential impacts on rare plant individuals or stands. If locations of rare plants are in areas that cannot be effectively avoided, then a Rare Plant Relocation Plan would identify effective means of translocation of the individuals or stands. The Rare Plant Relocation Plan would be developed consistent with performance criteria and other information provided in this document, and would require approval of LADRP and CDFW.

## E3.3.2 Rare Plant Translocation

Relocation for special-status plants may include the following measures, individually or in concert. The final Rare Plant Relocation Plan will be developed in coordination with CDFW, and will determine the detailed approach to rare plant translocation as required, including methods of propagule collection and propagation.

- Collection of baseline data on impacted rare plant locations to generate population estimates for potential translocation, per BR-9;
- Identification of receptor sites for rare plant translocation, consisting of conserved areas of suitable conditions for the species and ideally, extant populations that can be enhanced;
- Conserved sites may be portions of CCL that are not developed, or alternative nearby locations where land can be acquired and preserved;
- Collection of baseline data of conserved sites per BR-9, including soil conditions at impact and receptor sites;
- Topsoil conservation from rare plant locations to be impacted, for distribution on conserved sites;
- Seed collection/salvage and distribution on conserved sites;

- Collection of other propagules, including bulbs (*Calochortus* spp.), rhizomes (*Calystegia peirsonii*), and entire plants and pads (*Opuntia basilaris* var. *basilaris*) for distribution on conserved sites;
- Nursery propagation of species from collected propagules for outplanting and/or seed amplification (e.g. for *Helianthus californicus* or *Stillingia linearifolia*).

Conserved sites will require appropriate land protection instruments and financial assurances per BR-9. Where relocation cannot be achieved, through lack of receptor sites, or lack of success during monitoring period, then purchase of mitigation credits or offsite property with known populations of the affected species for inclusion in permanent open space areas or a conservation easement would be implemented per BR-9.

### E3.3.3 Draft Translocation Performance Criteria

Success of transplanted rare plants varies considerably, and may be as low as 10 percent, and is rarely higher than 50 percent. To effectively translocate populations of rare plants on CCL on a 1:1 ratio (impacted population:translocated population), appropriate methods are essential, and considerable overplanting will be required. Population estimates based on above ground individuals may also not reflect the true population level, particularly for perennial, bulbiferous species or species with below ground rhizomes.

The following performance criteria will be evaluated to achieve success of rare plant translocation.

- Population estimates of above ground plants will be considered complete if surveys are conducted in appropriate time of year for the species (usually blooming periods) and the rainfall for the year is within 20 percent of normal;
- Population estimates of above ground plants for bulbiferous or rhizomatous perennial species will be multiplied by 5 to provide a baseline for translocation;
- A total of 10 times the number of propagules as plants from the population estimate will be translocated;
- A minimum of 50 percent of propagules will germinate and/or bud the first growing season after transplant;
- A minimum of 10 percent of propagules will mature to flowering the first growing season after transplant for species with an annual flowering cycle;
- The population will show a stable or increasing trend during the full 5-year monitoring period, when compared to reference sites with intact populations of the species.

### E3.3.4 Monitoring and Reporting

Ongoing monitoring and reporting requirements will be detailed in the Rare Plant Relocation Plan, but will include at a minimum annual sampling of rare plant populations, as indicated above. Sampling frequency will be at a minimum one time per year. Reporting to LADRP would be conducted once per year, with the report developed later in the year to capture all sampling and remediation events conducted through the year. In assessing rare plant populations, each year's plants would represent a stand-alone number used to assess trends, and would be compared to a nearby reference population to account for annual variation in rare plant blooming and detectability.

### E3.3.5 Remediation Measures

Remediation measures would be implemented when the transplanted rare plant population is demonstrating a downward trend of greater than 10 percent when compared to reference populations, or any other of the above performance criteria are not met for the year.

Remediation measures may include any of the following, and would be developed in coordination with CDFW. The following represents a preliminary list of potential remediation measures. Actual measures would be developed based on site-specific conditions, performance monitoring results, and extent and duration of non-conformance with performance criteria.

- Weed management within receptor sites including hand removal and/or chemical application;
- Weed management within adjacent sites contributing to weed establishment on receptor sites;
- Application of mulch or other potential weed barriers where small-scale weed infestation problems are persistent;
- Implementation of temporary irrigation where soil water is limiting translocation success;
- Other measures supporting plant establishment where deemed appropriate, including establishment of planting basins, application of mulch, installation of browse protection;
- Re-planting as required, following the same protocol as originally utilized if it can be modified to increase success, or alternative propagation methods if original method has proved unsuccessful;
- Nursery propagation of species and outplanting to increase success;
- If rare plant relocation cannot be achieved, then per BR-9, purchase of mitigation credits or offsite property with known populations of the affected species for inclusion in permanent open space areas or a conservation easement would be implemented.

Annual activities related to remediation of problem conditions, along with intended activities yet to be implemented, would be included in annual monitoring reports.

# E3.4 Draft Oak Tree Mitigation Performance Criteria

The Oak Tree and Oak Woodland Mitigation Plan will be developed to identify location and acreage of oak tree and oak woodland restoration, plant propagule sources and types, planting methods, soil treatments or enhancements, temporary irrigation requirements, and long term monitoring and maintenance requirements.

An Oak Tree Report (SB Horticulture, 2014) identified a total of three coast live oaks and one valley oak that qualify for protection under the Los Angeles County Oak Tree Ordinance (see Figure 8-6 of the Partially Recirculated Draft EIR). One former heritage coast live oak was identified as deceased. The Project would require the removal of four protected oak trees because of their location in the landfill development area. This impact will be mitigated by Mitigation Measure BR-15; specifically, an oak tree permit would be acquired for removal of the qualifying oaks and all permit terms and conditions would be complied with. This is anticipated to include replanting of oaks.

The Oak Tree Report has the following anticipated replanting requirements for oak trees per the Los Angeles County Oak Tree Ordinance:

- 6 (six) 15 gallon *Quercus agrifolia*
- 2 (two) 15 gallon *Quercus lobata*

The total of 8 mitigation trees would be at a replacement to removal ratio of 2:1. To account for any survivorship challenges with these trees, the Oak Tree Report recommends planting at a higher ratio. Their recommendation is as follows:

- 11 (eleven) 15 gallon *Quercus agrifolia*
- 5 (five) 15 gallon *Quercus lobata*

The total of 16 mitigation trees would provide for allowance should trees not survive.

The Oak Tree and Oak Woodland Mitigation Plan will also identify the details for implementation of mitigation for impacts to Quercus berberidifolia Shrubland Alliance. The mitigation plan for impacts to scrub oak woodland will be developed consistent with the Los Angeles County Oak Woodlands Conservation and Management Plan.

Replanted oaks would be monitored on a schedule consistent with other site monitoring including tree survivorship, tree health/condition, tree height, and any conditions contributing to long-term survivorship, including browse, irrigation, weed intrusion, planting basins and/or mulch, etc.

CCL provides the following performance criteria for replanted oak trees, to be finalized based on conditions of the Oak Tree Permit which will be required for issuance prior to any oak tree removal.

- Oak tree plantings would be evaluated for survivorship annually, and dead trees would be remediated per measures below;
- Oak trees with a rating for health/condition of D (SB Horticulture, 2014) shall be considered dead, and remediated according to measures below;
- Oak trees would be monitored for survivorship for a minimum of 3 years without supplemental water; if supplemental water is required after year 2 of monitoring, then the overall 5-year monitoring schedule would be extended;
- Oak trees would require a minimum of 100 percent survivorship with a rating of A or B (SB Horticulture, 2014) in year 5, or a minimum of 3 years after the last supplemental water;
- Oak trees would gain a minimum of 10 percent of original height and/or canopy width each year when averaged over the 5-year monitoring period.
- Scrub oak trees planted within the oak woodland mitigation areas for Quercus berberidifolia Shrubland Alliance would also be subjected to performance criteria, as described under the Draft Revegetation Performance Criteria described in Section E3.2.3.

Remedial measures would be implemented when oak trees do not meet performance criteria. Remedial measures would include replanting oaks in new planting basins (except where original oak had died), and monitoring them for an additional 5 years after planting for compliance with performance criteria.

**Table E3-1. Proposed Metrics for Measuring Performance of Site Revegetation**

| Metric | Parameter | Definition | Typical Measurement Method |
|---|---|---|---|
| **Total Non-native Species** | **% absolute coverage** | Total foliar cover measured as the proportion of non-native plant cover to total sample area | Ocular estimation combined with vegetative transects (belt, or point-intersect) |
| **Moderate to High Priority Invasive Species** | **% absolute coverage** | Total foliar cover measured as the proportion of non-native plant cover of invasives to total sample area. Moderate to high priority invasive species are as defined by the California Invasive Plant Council (http://www.cal-ipc.org/) | Ocular estimation combined with vegetative transects (belt, or point-intersect) |
| **Total Vegetative Coverage** | **% absolute coverage** | Represents a proportion of the total foliar cover to total sample area | Vegetative transect sampling (plot, belt, or point-intersect) |
| **Native Coverage** | **% relative coverage** | Total foliar cover measured as the proportion of native plant cover to total plant cover | Vegetative transect sampling (plot, belt, or point-intersect). |
| **Tree Survivorship** | **% survivorship** | Planted trees surviving after installation over a specified time period. | Visual inspection during growing season. |
| **Shrub Coverage** | **% relative coverage** | Represents a proportion of the total foliar shrub cover to total plant cover | Vegetative transect sampling (plot, belt, or point-intersect) |
| **Tree Growth** | **feet/year** | Planted tree height | Measured with a stadia rod or with ocular estimates. |

**Table E3-2. Metrics Proposed for Evaluation for Revegetation Performance by Alliance**

| VegCAMP Code to Association | Alliance Name | Metrics Evaluated | | | | | |
|---|---|---|---|---|---|---|---|
| | | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Tree Survivorship | Shrub Coverage | Tree Growth |
| 37.102.00 | Adenostoma fasciculatum-Salvia mellifera Shrubland Alliance | ✓ | | ✓ | | ✓ | |
| 32.010.00 | Artemisia californica Shrubland Alliance | ✓ | ✓ | ✓ | | ✓ | |
| 32.110.05 | Artemisia californica-Eriogonum fasciculatum Shrubland Alliance | ✓ | ✓ | ✓ | | ✓ | |
| 32.120.00 | Artemisia californica-Salvia mellifera Shrubland Alliance | ✓ | ✓ | ✓ | | ✓ | |
| 36.310.00 | Atriplex canescens Shrubland Alliance | ✓ | ✓ | ✓ | | ✓ | |
| 44.150.03 | Avena (barbata, fatua) Herbaceous Semi-Natural Alliance | | ✓ | | | | |
| 63.510.01 | Baccharis salicifolia Shrubland Alliance | ✓ | ✓ | ✓ | | ✓ | |
| 32.050.00 | Encelia californica Shrubland Alliance | ✓ | ✓ | ✓ | | ✓ | |
| 32.040.02 | Eriogonum fasciculatum Shrubland Alliance | ✓ | ✓ | ✓ | | ✓ | |
| 61.130.14 | Populus fremontii Forest Alliance | ✓ | ✓ | ✓ | ✓ | | ✓ |
| 37.407.00 | Quercus berberidifolia Shrubland Alliance | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 32.090.00 | Salvia leucophylla Shrubland Alliance | ✓ | ✓ | ✓ | | ✓ | |
| 32.020.00 | Salvia mellifera Shrubland Alliance | ✓ | ✓ | ✓ | | ✓ | |
| 42.062.00 | Selaginella bigelovii Herbaceous Alliance | ✓ | ✓ | ✓ | | | |

**Table E3-3. Reference Data of Alliances on Undisturbed Portions of Chiquita Canyon Landfill**

| Alliance | Alliance Species Composition | | | Summary of Percent Cover from Transect Data | | | |
|---|---|---|---|---|---|---|---|
| | Cover (Native Vegetation in Bold) | Absolute % | Relative % | Alliance Summary | Absolute % | Relative % |
| **Quercus berberidifolia Shrubland Alliance** | **Scrub oak (*Quercus berberidifolia*)** | **44.37%** | **64.30%** | shrub cover | 65.23% | 94.54% |
| | **Chamise (*Adenostoma fasciculatum*)** | **6.03%** | **8.74%** | total native | 65.73% | 95.27% |
| | **California sagebrush (*Artemisia californica*)** | **5.67%** | **8.21%** | total non-native | 3.27% | 4.73% |
| | **Black sage (*Salvia mellifera*)** | **5.03%** | **7.29%** | total invasive/noxious | 0.00% | 0.00% |
| | **Toyon (*Heteromeles arbutifolia*)** | **3.80%** | **5.51%** | total vegetated | 69.00% | 100.00% |
| | **California buckwheat (*Eriogonum fasciculatum*)** | **0.33%** | **0.48%** | | | |
| | **Moss** | **0.50%** | **0.72%** | | | |
| | Non-native grass | 3.27% | 4.73% | | | |
| | Bare ground | 10.63% | | | | |
| | Leaf litter | 20.37% | | | | |
| | Total | 100.00% | 100.00% | | | |
| **Salvia leucophylla Shrubland Alliance** | **Purple sage (*Salvia leucophylla*)** | **34.32%** | **55.50%** | shrub cover | 59.02% | 95.44% |
| | **California sagebrush (*Artemisia californica*)** | **8.08%** | **13.07%** | total native | 60.24% | 97.41% |
| | **California buckwheat (*Eriogonum fasciculatum*)** | **7.34%** | **11.87%** | total non-native | 1.60% | 2.59% |
| | **Chamise (*Adenostoma fasciculatum*)** | **5.94%** | **9.61%** | total invasive/noxious | 0.06% | 0.10% |
| | **Black sage (*Salvia mellifera*)** | **2.00%** | **3.23%** | total vegetated | 61.84% | 100.00% |
| | **Scrub oak (*Quercus berberidifolia*)** | **1.34%** | **2.17%** | | | |
| | **Moss** | **1.14%** | **1.84%** | | | |
| | **Coffee fern (*Pellaea andromedifolia*)** | **0.02%** | **0.03%** | | | |
| | Unknown | 0.06% | 0.10% | | | |
| | Russian thistle (*Salsola tragus*) | 0.06% | 0.10% | | | |
| | Non-native grass | 1.54% | 2.49% | | | |
| | Bare ground | 11.78% | | | | |
| | Leaf litter | 26.38% | | | | |
| | Total | 100.00% | 100.00% | | | |
| **Adenostoma fasciculatum-Salvia mellifera Shrubland Alliance** | **Black sage (*Salvia mellifera*)** | **21.30%** | **36.92%** | shrub cover | 50.70% | 87.87% |
| | **Chamise (*Adenostoma fasciculatum*)** | **16.25%** | **28.16%** | total native | 51.10% | 88.56% |
| | **Scrub oak (*Quercus berberidifolia*)** | **5.85%** | **10.14%** | total non-native | 6.60% | 11.44% |
| | **Purple sage (*Salvia leucophylla*)** | **3.60%** | **6.24%** | total invasive/noxious | 0.00% | 0.00% |
| | **California sagebrush (*Artemisia californica*)** | **2.70%** | **4.68%** | total vegetated | 57.70% | 100.00% |
| | **Toyon (*Heteromeles arbutifolia*)** | **1.00%** | **1.73%** | | | |
| | **Coyote melon (*Cucurbita californica*)** | **0.40%** | **0.69%** | | | |
| | Non-native grass | 6.60% | 11.44% | | | |
| | Bare ground | 12.30% | | | | |
| | Leaf litter | 30.00% | | | | |
| | Total | 100.00% | 100.00% | | | |

**Table E3-3. Reference Data of Alliances on Undisturbed Portions of Chiquita Canyon Landfill**

| Alliance | Alliance Species Composition | | | Summary of Percent Cover from Transect Data | | | |
|---|---|---|---|---|---|---|---|
| | Cover (Native Vegetation in Bold) | Absolute % | Relative % | Alliance Summary | Absolute % | Relative % |
| **Eriogonum fasciculatum Shrubland Alliance** | **California buckwheat (*Eriogonum fasciculatum*)** | **38.53%** | **51.78%** | shrub cover | 56.18% | 75.50% |
| | **Bush sunflower (*Encelia californica*)** | **11.35%** | **15.26%** | total native | 56.18% | 75.50% |
| | **Mule fat (*Baccharis salicifolia*)** | **2.08%** | **2.79%** | total non-native | 18.23% | 24.50% |
| | **Black sage (*Salvia mellifera*)** | **1.88%** | **2.52%** | total invasive/noxious | 8.68% | 11.66% |
| | **Our Lord's candle (*Yucca whipplei*)** | **1.13%** | **1.51%** | total vegetated | 74.40% | 100.00% |
| | **Bush mallow (*Malacothamnus* sp.)** | **0.65%** | **0.87%** | | | |
| | **California sagebrush (*Artemisia californica*)** | **0.35%** | **0.47%** | | | |
| | **Deerweed (*Lotus scoparius*)** | **0.23%** | **0.30%** | | | |
| | Russian thistle (*Salsola tragus*) | 8.68% | 11.66% | | | |
| | Non-native grass | 9.55% | 12.84% | | | |
| | Rock/RipRap | 2.40% | | | | |
| | Woody Debris | 0.85% | | | | |
| | Bare ground | 7.18% | | | | |
| | Leaf litter | 15.18% | | | | |
| | Total | 100.00% | 100.00% | | | |
| **Encelia californica Shrubland Alliance** | **Bush sunflower (*Encelia californica*)** | **41.62%** | **78.94%** | shrub cover | 47.77% | 90.61% |
| | **Black sage (*Salvia mellifera*)** | **3.37%** | **6.39%** | total native | 47.78% | 90.64% |
| | **California buckwheat (*Eriogonum fasciculatum*)** | **1.18%** | **2.24%** | total non-native | 4.93% | 9.36% |
| | **California sagebrush (Artemisia californica)** | **0.83%** | **1.58%** | total invasive/noxious | 1.12% | 2.12% |
| | **Mule fat (*Baccharis salicifolia*)** | **0.77%** | **1.45%** | total vegetated | 52.72% | 100.00% |
| | **Coffee fern (*Pellaea andromedifolia*)** | **0.02%** | **0.03%** | | | |
| | Russian thistle (*Salsola tragus*) | 1.12% | 2.12% | | | |
| | Non-native grass | 3.82% | 7.24% | | | |
| | Bare ground | 17.63% | | | | |
| | Leaf litter | 29.65% | | | | |
| | Total | 100.00% | 100.00% | | | |
| **Populus fremontii Forest Alliance** | **Fremont cottonwood (*Populus fremontii*)** | **24.50%** | **35.25%** | tree cover | 24.50% | 35.25% |
| | **Mule fat (*Baccharis salicifolia*)** | **24.90%** | **35.83%** | shrub cover | 36.40% | 52.37% |
| | **Coyote brush (*Baccharis pilularis*)** | **10.00%** | **14.39%** | total native | 60.90% | 87.63% |
| | **Bush sunflower (*Encelia californica*)** | **0.35%** | **0.50%** | total non-native | 8.60% | 12.37% |
| | Unknown | 1.15% | 1.65% | total invasive/noxious | 8.60% | 12.37% |
| | Tamarix (*Tamarix* sp.) | 8.25% | 11.87% | total vegetated | 69.50% | 100.00% |
| | Russian thistle (*Salsola tragus*) | 0.35% | 0.50% | | | |
| | Woody Debris | 5.80% | | | | |
| | Bare ground | 10.25% | | | | |
| | Leaf litter | 14.45% | | | | |
| | Total | 100.00% | 100.00% | | | |

**Table E3-3. Reference Data of Alliances on Undisturbed Portions of Chiquita Canyon Landfill**

| Alliance | Alliance Species Composition | | | Summary of Percent Cover from Transect Data | | |
|---|---|---|---|---|---|---|
| | Cover (Native Vegetation in Bold) | Absolute % | Relative % | Alliance Summary | Absolute % | Relative % |
| **Artemisia californica-Eriogonum fasciculatum Shrubland Alliance** | **California buckwheat (*Eriogonum fasciculatum*)** | **22.10%** | **30.87%** | shrub cover | 56.30% | 78.63% |
| | **California sagebrush (*Artemisia californica*)** | **20.40%** | **28.49%** | total native | 60.10% | 83.94% |
| | **California montain-mahogany (*Cercocarpus betuloides*)** | **5.50%** | **7.68%** | total non-native | 11.50% | 16.06% |
| | **Black sage (*Salvia mellifera*)** | **3.80%** | **5.31%** | total invasive/noxious | 0.00% | 0.00% |
| | **Purple sage (*Salvia leucophylla*)** | **3.70%** | **5.17%** | total vegetated | 71.60% | 100.00% |
| | **Mule fat (*Baccharis salicifolia*)** | **0.80%** | **1.12%** | | | |
| | **Coffee fern (*Pellaea andromedifolia*)** | **0.50%** | **0.70%** | | | |
| | **Moss** | **3.30%** | **4.61%** | | | |
| | Non-native grass | 11.50% | 16.06% | | | |
| | Bare ground | 9.90% | | | | |
| | Leaf litter | 18.50% | | | | |
| | Total | 100.00% | 100.00% | | | |
| **Selaginella bigelovii Herbaceous Alliance** | **Bigelow's spike moss (*Selaginella bigelovii*)** | **44.00%** | **70.29%** | herb cover | 44.00% | 70.29% |
| | **California buckwheat (*Eriogonum fasciculatum*)** | **12.80%** | **20.45%** | shrub cover | 18.60% | 29.71% |
| | **Bush sunflower (*Encelia californica*)** | **4.40%** | **7.03%** | total native | 62.60% | 100.00% |
| | **Our Lord's candle (*Yucca whipplei*)** | **1.40%** | **2.24%** | total non-native | 0.00% | 0.00% |
| | Bare ground | 30.80% | | total invasive/noxious | 0.00% | 0.00% |
| | Leaf litter | 6.60% | | total vegetated | 62.60% | 100.00% |
| | Total | 100.00% | 100.00% | | | |
| **Baccharis salicifolia Shrubland Alliance** | **Mule fat (*Baccharis salicifolia*)** | **46.30%** | **72.68%** | shrub cover | 51.10% | 80.22% |
| | **Coyote brush (*Baccharis pilularis*)** | **4.30%** | **6.75%** | total native | 51.10% | 80.22% |
| | **California buckwheat (*Eriogonum fasciculatum*)** | **0.50%** | **0.78%** | total non-native | 12.60% | 19.78% |
| | Non-native grass | 12.60% | 19.78% | total invasive/noxious | 0.00% | 0.00% |
| | Bare ground | 10.15% | | total vegetated | 63.70% | 100.00% |
| | Leaf litter | 26.15% | | | | |
| | Total | 100.00% | 100.00% | | | |
| **Artemisia californica-Salvia mellifera Shrubland Alliance** | **Black sage (*Salvia mellifera*)** | **30.15%** | **44.93%** | shrub cover | 65.55% | 97.69% |
| | **California sagebrush (*Artemisia californica*)** | **30.85%** | **45.98%** | total native | 65.55% | 97.69% |
| | **Purple sage (*Salvia leucophylla*)** | **2.90%** | **4.32%** | total non-native | 1.55% | 2.31% |
| | **Coyote brush (*Baccharis pilularis*)** | **1.65%** | **2.46%** | total invasive/noxious | 0.00% | 0.00% |
| | Non-native grass | 1.55% | 2.31% | total vegetated | 67.10% | 100.00% |
| | Bare ground | 12.20% | | | | |
| | Leaf litter | 20.70% | | | | |
| | Total | 100.00% | 100.00% | | | |

**Table E3-3. Reference Data of Alliances on Undisturbed Portions of Chiquita Canyon Landfill**

| Alliance | Alliance Species Composition | | | Summary of Percent Cover from Transect Data | | |
|---|---|---|---|---|---|---|
| | Cover (Native Vegetation in Bold) | Absolute % | Relative % | Alliance Summary | Absolute % | Relative % |
| **Salvia mellifera Shrubland Alliance** | **Black sage (*Salvia mellifera*)** | **40.95%** | **55.77%** | shrub cover | 65.40% | 89.07% |
| | **California buckwheat (*Eriogonum fasciculatum*)** | **21.45%** | **29.21%** | total native | 65.50% | 89.21% |
| | **Bush sunflower (*Encelia californica*)** | **2.23%** | **3.03%** | total non-native | 7.93% | 10.79% |
| | **California sagebrush (*Artemisia californica*)** | **0.53%** | **0.72%** | total invasive/noxious | 0.00% | 0.00% |
| | **Mule fat (*Baccharis salicifolia*)** | **0.25%** | **0.34%** | total vegetated | 73.43% | 100.00% |
| | **Coffee fern (*Pellaea andromedifolia*)** | **0.10%** | **0.14%** | | | |
| | Non-native grass | 7.93% | 10.79% | | | |
| | Bare ground | 11.53% | | | | |
| | Leaf litter | 15.05% | | | | |
| | Total | 100.00% | 100.00% | | | |
| **Atriplex canescens Shrubland Alliance** | **Fourwing saltbush (*Atriplex canescens*)** | **37.28%** | **60.03%** | shrub cover | 48.76% | 78.52% |
| | **California sagebrush (*Artemisia californica*)** | **8.16%** | **13.14%** | total native | 48.76% | 78.52% |
| | **California buckwheat (*Eriogonum fasciculatum*)** | **1.88%** | **3.03%** | total non-native | 13.34% | 21.48% |
| | **Bush sunflower (*Encelia californica*)** | **1.22%** | **1.96%** | total invasive/noxious | 2.06% | 3.32% |
| | **Black sage (*Salvia mellifera*)** | **0.22%** | **0.35%** | total vegetated | 62.10% | 100.00% |
| | Non-native grass | 11.28% | 18.16% | | | |
| | Russian thistle (*Salsola tragus*) | 2.06% | 3.32% | | | |
| | Bare ground | 18.06% | | | | |
| | Leaf litter | 19.84% | | | | |
| | Total | 100.00% | 100.00% | | | |
| **Artemisia californica Shrubland Alliance** | **California sagebrush (*Artemisia californica*)** | **51.35%** | **67.88%** | shrub cover | 67.85% | 89.69% |
| | **Purple sage (*Salvia leucophylla*)** | **9.35%** | **12.36%** | total native | 67.85% | 89.69% |
| | **California buckwheat (*Eriogonum fasciculatum*)** | **7.15%** | **9.45%** | total non-native | 7.80% | 10.31% |
| | Non-native grass | 7.10% | 9.39% | total invasive/noxious | 0.70% | 0.93% |
| | Russian thistle (*Salsola tragus*) | 0.70% | 0.93% | total vegetated | 75.65% | 100.00% |
| | Bare ground | 8.25% | | | | |
| | Leaf litter | 16.10% | | | | |
| | Total | 100.00% | 100.00% | | | |

**Table E3-4a. Proposed Success Criteria for Selaginella bigelovii Herbaceous Alliance (42.062.00)**

| Year | Metrics Evaluated | | |
|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage |
| | Parameter | | |
| | % absolute coverage | % absolute coverage | % absolute coverage |
| Reference Site Summary | 0% | 0% | 62.60% |
| 1 | <30% | <20% | >25% |
| 3 | <20% | <10% | >35% |
| 5 | <10% | <5% | >50% |

**Table E3-4b. Proposed Success Criteria for Salvia mellifera Shrubland Alliance (32.020.00)**

| Year | Metrics Evaluated | | | |
|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Shrub Coverage |
| | Parameter | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % relative coverage |
| Reference Site Summary | 7.3% | 0.0% | 73.4% | 89.1% |
| 1 | <30% | <20% | >20% | >30% |
| 3 | <20% | <10% | >40% | >50% |
| 5 | <10% | <5% | >60% | >75% |

**Table E3-4c. Proposed Success Criteria for Salvia leucophylla Shrubland Alliance (32.090.00)**

| Year | Metrics Evaluated | | | |
|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Shrub Coverage |
| | Parameter | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % relative coverage |
| Reference Site Summary | 1.6% | 0.1% | 61.8% | 95.4% |
| 1 | <30% | <20% | >20% | >25% |
| 3 | <20% | <10% | >35% | >50% |
| 5 | <10% | <5% | >50% | >80% |

**Table E3-4d. Proposed Success Criteria for Quercus berberidifolia Shrubland Alliance (37.407.00)**

| Year | Metrics Evaluated | | | | |
|---|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Survivorship | Shrub Coverage |
| | Parameter | | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % survivorship | % relative coverage |
| Reference Site Summary | 3.3% | 0.0% | 69.0% | n/a | 94.5% |
| 1 | <30% | <20% | >15% | 60% | >25% |
| 3 | <20% | <10% | >30% | 40% | >50% |
| 5 | <10% | <5% | >50% | -- | >80% |

**Table E3-4e. Proposed Success Criteria for Encelia californica Shrubland Alliance (32.050.00)**

| Year | Metrics Evaluated | | | |
|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Shrub Coverage |
| | Parameter | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % relative coverage |
| Reference Site Summary | 4.9% | 1.1% | 52.7% | 90.6% |
| 1 | <30% | <20% | >15% | >25% |
| 3 | <20% | <10% | >30% | >50% |
| 5 | <10% | <5% | >40% | >80% |

**Table E3-4f. Proposed Success Criteria for Atriplex canescens Shrubland Alliance (36.310.00)**

| Year | Metrics Evaluated | | | |
|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Shrub Coverage |
| | Parameter | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % relative coverage |
| Reference Site Summary | 13.3% | 2.1% | 62.1% | 78.5% |
| 1 | <30% | <20% | >15% | >20% |
| 3 | <20% | <10% | >30% | >40% |
| 5 | <10% | <5% | >45% | >60% |

**Table E3-4g. Proposed Success Criteria for Artemisia californica-Salvia mellifera Shrubland Alliance (32.120.00)**

| Year | Metrics Evaluated | | | |
|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Shrub Coverage |
| | Parameter | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % relative coverage |
| Reference Site Summary | 1.6% | 0.0% | 67.1% | 97.7% |
| 1 | <30% | <20% | >15% | >20% |
| 3 | <20% | <10% | >30% | >50% |
| 5 | <10% | <5% | >50% | >80% |

**Table E3-4h. Proposed Success Criteria for Artemisia californica Shrubland Alliance (32.010.00)**

| Year | Metrics Evaluated | | | |
|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Shrub Coverage |
| | Parameter | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % relative coverage |
| Reference Site Summary | 7.8% | 0.7% | 75.6% | 89.7% |
| 1 | <30% | <20% | >20% | >25% |
| 3 | <20% | <10% | >40% | >50% |
| 5 | <10% | <5% | >60% | >70% |

**Table E3-4i. Proposed Success Criteria for Adenostoma fasciculatum-Salvia mellifera Shrubland Alliance (37.102.00)**

| Year | Metrics Evaluated | | | |
|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Shrub Coverage |
| | Parameter | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % relative coverage |
| Reference Site Summary | 6.6% | 0.0% | 57.7% | 87.9% |
| 1 | <30% | <20% | >15% | >20% |
| 3 | <20% | <10% | >30% | >45% |
| 5 | <10% | <5% | >45% | >70% |

**Table E3-4j. Proposed Success Criteria for Populus fremontii Forest Alliance (61.130.14)**

| Year | Metrics Evaluated | | | | |
|---|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Survivorship | Tree Growth |
| | Parameter | | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % survivorship | feet/year |
| Reference Site Summary | 8.6% | 8.6% | 69.5% | n/a | n/a |
| 1 | <30% | <20% | >15% | 70% | 5' |
| 3 | <20% | <10% | >30% | -- | 10' |
| 5 | <10% | <5% | >55% | -- | 15' |

**Table E3-4k. Proposed Success Criteria for Artemisia californica-Eriogonum fasciculatum Shrubland Alliance (32.110.05)**

| Year | Metrics Evaluated | | | |
|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Shrub Coverage |
| | Parameter | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % relative coverage |
| Reference Site Summary | 11.5% | 0.0% | 71.6% | 78.6% |
| 1 | <30% | <20% | >15% | >20% |
| 3 | <20% | <10% | >30% | >40% |
| 5 | <10% | <5% | >60% | >60% |

**Table E3-4l. Proposed Success Criteria for Eriogonum fasciculatum Shrubland Alliance (32.040.02)**

| Year | Metrics Evaluated | | | |
|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Shrub Coverage |
| | Parameter | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % relative coverage |
| Reference Site Summary | 18.2% | 8.7% | 74.4% | 75.5% |
| 1 | <30% | <20% | >15% | >20% |
| 3 | <20% | <10% | >30% | >40% |
| 5 | <10% | <5% | >60% | >60% |

**Table E3-4m. Proposed Success Criteria for Baccharis salicifolia Shrubland Alliance (63.510.01)**

| Year | Metrics Evaluated | | | |
|---|---|---|---|---|
| | Total Non-native Species | Moderate to High Priority Invasive Species | Total Vegetative Coverage | Shrub Coverage |
| | Parameter | | | |
| | % absolute coverage | % absolute coverage | % absolute coverage | % relative coverage |
| Reference Site Summary | 12.6% | 0.0% | 63.7% | 80.2% |
| 1 | <30% | <20% | >15% | >20% |
| 3 | <20% | <10% | >30% | >40% |
| 5 | <10% | <5% | >50% | >60% |

**Table E3-4n. Proposed Success Criteria for Avena (barbata, fatua) Semi-natural Stands (44.150.03)**

| Year | Metric |
|---|---|
| | Moderate to High Priority Invasive Species |
| | % absolute coverage |
| Reference Site Summary | Not Sampled |
| 1 | <20% |
| 3 | <10% |
| 5 | <5% |

APPENDIX H1

# Methodology

## H1.1 Introduction

This section presents the methodology used to estimate emissions and perform dispersion modeling for the Proposed Project. Emissions were estimated for the incremental increase in activity associated with the Proposed Project, and were not calculated for activity associated with the existing landfill.

## H1.2 Emission Calculation Methodology

Emissions of criteria pollutants were estimated for construction and operation of the Proposed Project. Emissions from construction of the proposed new entrance, landfill modules, and compost facility would result from on-road vehicle exhaust, off-road equipment exhaust, and fugitive dust. Operation-related emissions would result from on-road vehicle exhaust, off-road equipment exhaust, fugitive dust, flare operation, fugitive landfill gas (LFG), and composting. Onsite and offsite vehicle exhaust emissions from waste and compost haul truck trips, for both transfer trucks and direct collection trucks, were calculated and included in the operational emissions totals. Emissions were not calculated for the landfill gas-to-energy (LFGTE) plant, because operations associated with this facility were assumed to be the included with existing conditions and would not change with the Proposed Project.

The Proposed Project schedule lists the anticipated dates of entrance construction, landfill module construction, compost facility construction, landfill operation, and compost facility operation. Entrance construction is scheduled to last for 6 months in 2018. Landfill module construction is scheduled to last for 6 months and will occur in 2017 (Module 6), 2021 (Module 7), 2025 (Module 8), 2029 (Module 9), 2033 (Module 10), 2037 (Module 11), and 2041 (Module 12). Compost facility construction is scheduled to last for 4 months. Initial construction of the compost facility is scheduled for 2019 and the compost facility will be relocated twice, with construction scheduled to occur in 2028 and 2038. Proposed Project landfill operation is scheduled to ramp up over 7 years, beginning January 1, 2017. Operation at full capacity would begin in 2024.

The impact analysis conservatively summed the annual emissions that would be generated from anticipated construction activities with the emissions that would be generated from annual operation of the Proposed Project to identify the future project year with the highest potential combined emissions. Through this process, the year identified to be the project year with the highest potential combined emissions varied by pollutant. 2041 was identified to be the project year with the highest potential combined emissions of reactive organic gases (ROG), carbon monoxide (CO), particulate matter with aerodynamic diameter less than or equal to 10 microns ($PM_{10}$) and particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), while 2037 was the worst-case year for oxides of nitrogen (NOx), and 2039 the worst-case year for sulfur oxides ($SO_2$). Landfill operation and compost facility operation are scheduled to occur in each of the three worst-case years, while module construction is only expected to occur in 2037 and 2041. Year 2039 represents the maximum year of LFG generation, and therefore, maximum fugitive LFG and flare emissions. Emissions would be higher when operation, construction, and LFG generation overlap.

The values estimated for the project years with the highest potential combined emissions were used in evaluation of potential air quality and acute health risk impacts. Chronic health risk impacts were evaluated based on 30 year average emissions for the 30 individual highest emission years.

Emission calculation spreadsheets are included in Appendix H-2.

### H1.2.1 Module and Entrance Construction Emissions

Emissions of CO, NOx, ROG, SOx, $PM_{10}$, and $PM_{2.5}$ would be generated during construction of the relocated entrance, the new landfill modules, and the compost facility. Activities during construction of the relocated entrance and the compost facility would include site preparation, grading, road construction, foundation construction, and building construction. Construction activities during landfill module construction would include excavation, site preparation and placement of liner materials. Onsite and offsite construction emissions were divided into three categories: vehicle and construction equipment exhaust, fugitive dust generated by vehicle travel on paved and unpaved roads, and fugitive dust generated from earthmoving activities and paving activities. During onsite construction, activities were assumed to occur during daylight hours, 5 days per week, and 6 months per year during the late spring, summer, and early fall.

The Proposed Project would include the following best management practices (BMP) to reduce emissions during construction:

- The construction equipment, not owned by Chiquita Canyon Landfill (CCL), would be equipped with engines meeting California Air Resources Board (CARB) requirements for a large fleet at the time of construction (13 *California Code of Regulations* 2449).
- The construction equipment, not owned by CCL, would be equipped with engines meeting Tier 4f emission standards after project year 2020.
- Trucks would be prevented from idling longer than 5 minutes, to the extent feasible.
- Construction equipment idling times would be minimized, and excessive use would be prevented, to the extent feasible.
- Use of construction equipment would be suspended during Stage 2 and 3 smog alerts.
- To reduce/minimize construction-related fugitive dust, water would be applied 4 to 7 times daily, dependent on weather, to disturbed areas within the construction site.
- Fugitive dust from vehicle travel on unpaved roads would be controlled through the application of water 4 to 7 times daily, dependent on weather, the application of soil stabilizers, and the enforcement of a 15 mph speed limit.

**Construction Exhaust Emissions**

For construction that would occur prior to project year 2020, construction equipment exhaust emissions of CO, NOx, ROG, SOx, $PM_{10}$, and $PM_{2.5}$ were estimated using emission factors taken from the South Coast Air Quality Management District (SCAQMD) California Environmental Quality Act (CEQA) website. For construction that would occur after project year 2020, Tier 4f emission factors, taken from Appendix D of the CalEEMod User Guide (ENVIRON, 2013), were used to estimate construction equipment exhaust emissions of CO, NOx, ROG, $PM_{10}$, and $PM_{2.5}$, while SOx emissions were estimated using emission factors from the SCAQMD CEQA website. The construction equipment and service trucks used for routine onsite travel were considered onsite emission sources, while worker commute trips were considered offsite emission sources. The construction equipment fleet was assumed to meet CARB requirements for a large fleet. On-road vehicle exhaust emissions were estimated using EMFAC2014 average emission factors for the Los Angeles portion of SCAQMD. It was assumed that service trucks would travel 5 miles per day onsite, and employees would commute a distance of 40 miles roundtrip each day. Entrance construction was assumed to require 20 workers per day, while module construction would require 40 workers per day.

**Construction Fugitive Dust Emissions**

Fugitive dust emissions would result from vehicle travel on unpaved and paved roads, and soil disturbing activities such as module excavation. Emission factors from EMFAC 2014 were used to estimate fugitive emissions from tire and brake wear. Fugitive dust emissions from vehicle travel on unpaved and paved roads were estimated using United States Environmental Protection Agency (EPA)-approved emission factors and methodology published in AP-42 (EPA, 2006 and 2011a). It was assumed that unpaved roads would be watered 4-7 times daily, soil stabilizers would be applied, and vehicle speed on unpaved roads would be reduced to 15 miles per hour as project BMPs. Therefore, the emissions from vehicle travel on unpaved road were assumed to be reduced by 55 percent after control (SCAQMD, 2007).

Fugitive dust emissions from soil disturbance (e.g., grading and excavating activities) were estimated using recommended emission factors from the SCAQMD *California Environmental Quality Act (CEQA) Air Quality Handbook* (SCAQMD, 1993). CCL is required to implement stringent fugitive dust control measures at the existing landfill and would also apply these measures to the Proposed Project as project BMPs. A full list of Proposed Project fugitive dust control measures can be found in Chapter 11, Air Quality, Table 11-1. These fugitive dust control measures exceed the reductions associated with individual measures described in the SCAQMD CEQA guidance, therefore, an enhanced control efficiency of 75 percent was applied to fugitive dust emissions from disturbed areas and earthmoving (SMAQMD, 2015).

## H1.2.2 Proposed Project Landfill Operation Emissions

Emissions of CO, NOx, ROG, SOx, $PM_{10}$, and $PM_{2.5}$ would result from operation of the landfill for the Proposed Project. Proposed Project operation emissions would be generated from routine maintenance activities, worker commute trips, haul truck trips, fugitive LFG, and LFG flares operated onsite. Onsite and offsite operation emissions were divided into five categories: vehicle exhaust, stationary source exhaust, fugitive dust generated by travel on paved and unpaved roads, fugitive dust generated from soil disturbance, and fugitive LFG. Operation activities at the landfill are assumed to occur 10 hours per day, 6 days per week, and 52 weeks per year. The gas collection system and the LFGTE plant are operated at all times, and fugitive LFG is emitted continuously, 24 hours per day, 7 days per week, and 52 weeks per year.

The Proposed Project would include the following BMPs to reduce emissions during operation:

- Off-road diesel equipment purchased by CCL for operation of the Proposed Project (used for additional waste received) would be equipped with engines meeting Tier 4f emission standards.
- Unnecessary truck and equipment idling would be limited to less than 5 minutes, to the extent feasible.
- Use of off-road diesel equipment would be suspended during Stage 2 and 3 smog alerts (SCAQMD, 1993), to the extent feasible.
- Fugitive dust BMPs for vehicle travel on paved roads, vehicle travel on unpaved roads, and soil disturbance would be the same as described above for construction.
- Operate the landfill to improve LFG collection efficiency to a site-wide average of 85 percent through application of a combination of daily cover, intermediate cover, and final cover to provide a beneficial improvement in ongoing LFG collection efficiency.[1]

[1] This BMP is based on the SCS Engineers Memorandum dated November 2016 (SCS, 2016a), presented in Appendix H-3, which provides an evaluation of the benefits of cover modifications to improve LFG collection efficiency at CCL. Improvements to the existing site-wide LFG collection efficiency are modeled using a methodology developed by the Solid Waste Industry for Climate Solutions (SWICS 2009), which allows for adjustment of collection efficiency within a range of values by cover type. By optimizing the landfill surface area converted to intermediate and final (impermeable membrane) cover, ongoing LFG collection efficiency can be increased at the landfill from current levels (estimated at 81.7 percent) to 85 percent, and maintained at this level by management of cover, reducing fugitive emissions of GHGs and TACs.

- The existing, approved LFGTE plant would be optimized, to use collected LFG as fuel to produce electricity and to minimize flaring of collected LFG.

**Operation Vehicle Exhaust Emissions**

For equipment purchased to support the increase in daily tonnage associated with the Proposed Project, Tier 4f emission factors, taken from Appendix D of the CalEEMod User Guide (ENVIRON, 2013), were used to estimate off-road diesel equipment exhaust emissions of CO, NOx, ROG, $PM_{10}$, and $PM_{2.5}$, while SOx emissions were estimated using emission factors taken from the SCAQMD CEQA website. Automobile and truck exhaust emissions were estimated using EMFAC2014 average emission factors for the Los Angeles portion of the SCAQMD. Trucks used for routine maintenance activities were considered onsite emission sources, while worker commute trips were considered offsite emission sources. It was assumed that service trucks would travel 5 miles per day onsite and that there would be 25 onsite employees commuting a distance of 40 miles roundtrip each day.

Waste trucks would travel both onsite and offsite. Vehicle traffic associated with transport of the solid waste associated with the Proposed Project would include traffic from both direct collection and waste transfer facilities. The net change in vehicle traffic for the peak day, taken from Chapter 2, Project Description, was used to calculate worst-case emissions for averaging periods of 24 hours or less. Emissions for averaging periods of 1 year or greater were calculated based on the net change in vehicle traffic for the average day, taken from Chapter 2, Project Description. It was assumed that local waste trucks would travel 28.2 miles per trip offsite (14.1 miles one way) and approximately 5 miles per trip onsite, with an onsite idling time of 3.5 minutes. Facility transfer waste trucks were assumed to travel 90.6 miles per trip offsite (45.3 miles one way) and approximately 5 miles per trip onsite, with an onsite idling time of 3.5 minutes. Each truck was assumed to make one trip per day.

**Stationary Source Exhaust Emissions**

CCL currently operates two LFG flares onsite. As part of the Proposed Project, two additional flares would be installed. Emissions from the project flares were estimated based on the potential to emit emission rates of the existing flares. Facility data shown in the Golder Associates Landfill Generation Report indicate that on average, 81.7 percent of the generated LFG is captured by the existing LFG collection system, based upon the averaging method recommended by the SCAQMD and directed for use by Los Angeles County Department of Public Works (LACDPW) (Golder Associates, 2016). Per the LFG collection efficiency BMP described above and in Chapter 11, Air Quality, Table 11-1, application of a combination of daily cover, intermediate cover, and final cover would be used to increase the LFG collection efficiency to 85 percent. Therefore, it was assumed that 85 percent of future LFG generated would be combusted by the flares.

**Operation Fugitive Dust Emissions from Vehicles and Soil Disturbance**

Fugitive dust would result from vehicle travel on unpaved and paved roads, and soil disturbing activities such as daily landfill covering and waste compacting. Emission factors from EMFAC 2014 were used to estimate fugitive emissions from tire and brake wear. Fugitive dust emissions from vehicle travel on unpaved and paved roads were estimated using EPA-approved emission factors and methodology published in AP-42 (EPA, 2006 and 2011a). It was assumed that unpaved roads would be watered 4-7 times daily, soil stabilizers would be applied, and vehicle speed on unpaved roads would be reduced to 15 miles per hour as project BMPs. Therefore, the emissions from vehicle travel on unpaved roads were assumed to be reduced by 55 percent after control (SCAQMD, 2007).

Fugitive dust emissions from soil disturbance (e.g., grading activities) were estimated using recommended emission factors from the SCAQMD *California Environmental Quality Act (CEQA) Air Quality Handbook* (SCAQMD, 1993). CCL is required to implement stringent fugitive dust control measures at the existing landfill and would also apply these measures to the Proposed Project as project BMPs. A full list of Proposed Project fugitive dust control measures can be found in Chapter 11, Air Quality, Table 11-1.

These fugitive dust control measures exceed the reductions associated with individual measures described in the SCAQMD CEQA guidance, therefore, an enhanced control efficiency of 75 percent was applied to fugitive dust emissions from disturbed areas and soil disturbance (SMAQMD, 2015).

**Fugitive Landfill Gas Emissions**

Fugitive LFG emissions would result from the aerobic decomposition of organic waste and the anaerobic bacterial digestion of buried waste. CCL is required to treat 75 percent of all generated LFG emissions, per 40 *Code of Federal Regulations* 60 Subpart WWW; however, facility data indicate that, on average, 81.7 percent of generated LFG is combusted in the flare, based upon the averaging method recommended by the SCAQMD and directed for use by LACDPW (Golder Associates, 2016). Per the LFG collection efficiency BMP described above and in Chapter 11, Air Quality, Table 11-1, application of a combination of daily cover, intermediate cover, and final cover would be used to increase the LFG collection efficiency to 85 percent. Based on the LFG capture rate, it was estimated that 15 percent of LFG generated would be emitted as fugitive emissions.

### H1.2.3 Compost Facility Emissions

Emissions associated with construction and operation of the proposed compost facility were estimated by SCS Engineers. Methodology and emission totals are presented in a separate technical memorandum, included in Appendix H-6 (SCS, 2016b).

## H1.3 Dispersion Modeling Methodology

Dispersion modeling was conducted to assess the potential air quality impacts of the CO, NOx, sulfur dioxide ($SO_2$), $PM_{10}$, and $PM_{2.5}$ emissions from construction and operation of the Proposed Project. Emissions were modeled using the EPA-approved AERMOD dispersion modeling system (Version 15181). The AERMOD model is a steady-state, multiple-source, dispersion model that incorporates hourly meteorological data inputs and local surface characteristics. The AERMOD modeling system uses the terrain preprocessor AERMAP and the meteorological data preprocessor AERMET. The AERMOD model was run using regulatory default control options and rural dispersion mode. SCAQMD Modeling Guidance suggests the urban option for modeling, however, it was determined the area directly around the landfill is not urban (SCAQMD, 2015). In addition, the use of rural dispersion would provide a more conservative modeling result. Significance thresholds and standards for each pollutant and averaging time were used to evaluate the results from the dispersion modeling analysis.

AERMAP (Version 11103) was used to determine the base elevations for receptors, stationary sources, and mobile sources. United States Geological Survey (USGS) National Elevation Dataset (NED) 1 arc second format data were used as the input to AERMAP. All LFG source elevations were obtained from the average elevation/height from CCL engineering drawings. All coordinates were referenced to Universal Transverse Mercator North American Datum 1983, Zone 11.

The nearest receptor locations were placed at existing residences, commercial properties, and sensitive receptors. This is consistent with the SCAQMD Localized Significance Threshold (LST) methodology (SCAQMD, 2006). Receptors were selected based initially on USGS land use/land classification maps for year 2006. These receptor locations were then further refined to better capture the worst-case scenario. Updated satellite imagery was evaluated when preparing the Partially Recirculated Draft Environmental Impact Report (EIR), and additional receptors were placed where development had occurred since the Original Draft EIR was prepared. Given the spatial variation of the landfill, the nearest receptor locations with the possibility of public presence in all directions around the landfill were included in the modeling. The refinement was based on the most recent available USGS satellite imagery, to determine the most representative receptors in each direction, radiating out from the landfill. Receptors were excluded in rural undeveloped areas where public access is either not possible or expected, in accordance with sensitive receptor criteria.

Meteorological data for the Santa Clarita station that had been pre-processed using AERMET (Version 15181) were available from SCAQMD for the years 2008 through 2012. These data were downloaded from the SCAQMD Web site for use in the modeling analysis.

The emissions sources included in the modeling and the source types used for the modeling are summarized in Table H-1.

Table H-1. Source Type Used in Air Dispersion Modeling
*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Source Name | Source Type |
|---|---|
| **Construction Sources** | |
| Landfill Module and Compost Facility Construction (Fugitive Dust) | Area |
| Landfill Module and Compost Facility Construction (Exhaust) | Gridded Point |
| **Operational Sources** | |
| Flares | Point |
| Landfill Operation (Fugitive Dust) | Area |
| Landfill Operation (Exhaust) | Gridded Point |
| Onsite Paved Road Truck Travel (Onsite Construction Service Trucks, Onsite Service Trucks, and Waste Trucks) | Volume |
| Onsite Unpaved Road Truck Travel (Waste Trucks Only) | Volume |
| Entrance Truck Idling | Gridded Point |
| Offsite Travel (Landfill Employees, Construction Employees, and Waste Trucks) | Volume |
| Compost Facility (Fugitive Dust) | Area |
| Compost Facility (Exhaust) | Gridded Point |

Consistent with the SCAQMD LST methodology, the potential impacts from emissions from onsite sources for the Proposed Project were evaluated for the nearest receptor locations. Predicted worst-case emissions of CO, $PM_{10}$, and $PM_{2.5}$ from onsite sources would occur during the year 2041, predicted worst-case onsite emissions of $SO_2$ would occur during 2039, and predicted worst-case onsite emissions of NOx would occur during the year 2037. Activities associated with operation and construction would generate emissions of each pollutant at different rates, resulting in different maximum emission years. The dispersion modeling for the LST impact analysis used combined emissions estimated from onsite construction and operation sources in the maximum year for each pollutant. The sources included in the modeling impact assessment include activities associated with the construction of Module 12, operation of Module 11, flare operation, composting operation, and onsite vehicle trips associated with operation.

To better characterize the conversion of NOx to nitrogen dioxide ($NO_2$), impacts of 1-hr and annual $NO_2$ were modeled using the ambient ratio method. A $NO_2$ to NOx ratio of 0.8 was used for the 1-hr $NO_2$ impact analysis (EPA, 201**1b), and a $NO_2$ to NOx ratio of 0.75 was used for the annual $NO_2$ impact analysis (EPA, 2005).**

# H1.4 Health Risk Assessment

The health risk assessment (HRA) was prepared to predict potential human health risks from exposure to toxic air contaminant (TAC) emissions from the Proposed Project. The risk categories evaluated include individual lifetime cancer risk, noncancer health effects from chronic (long-term) exposure, and noncancer health effects from acute (short-term) exposure. The HRA was performed following both the previous guidance outlined in the "*Air Toxics Hot Spots Program Risk Assessment Guidelines*"

(Office of Environmental Health Hazard Assessment [OEHHA], 2003), and the latest guidance outlined in the "*Guidance Manual for Preparation of Health Risk Assessments*" (OEHHA, 2015a).

Following the 2003 OEHHA guidance, the HRA modeling was performed using the CARB Hotspots Analysis and Reporting Program (HARP), Version 1.4f, along with the HARP On-Ramp program (Version 1.0). The HARP On-Ramp tool was used to import the AERMOD air dispersion modeling results (predicted concentrations at specific locations) into the HARP Risk Module. The HARP Risk Module uses AERMOD-predicted pollutant concentrations, exposure assumptions, and approved health values (i.e., pollutant-specific cancer potency values and chronic/acute reference exposure levels [RELs]) from OEHHA to predict potential health impacts in terms of lifetime cancer risk, acute hazard index (HIA), and chronic hazard index (HIC).

Following the 2003 OEHHA guidance and 2011 SCAQMD guidelines, the HRA estimated potential health impacts associated with the following exposure routes: dermal absorption, and ingestion of homegrown produce, soil, and mother's milk. In addition, because inhalation is one of the dominant exposure pathways for cancer risks, the Derived (Adjusted) Method in HARP was used for the cancer risk evaluation based on the *CARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk* (CARB, 2003). The exposure duration for cancer risks at residential and sensitive receptors was assumed to be 24 hours per day continuously for 70 years. For cancer risks at workplace receptors, the exposure duration was assumed to be 8 hours per day, 5 days per week, for 30 years.

Following the 2015 OEHHA guidance, the HRA modeling was performed using the CARB Hotspots Analysis and Reporting Program 2 (HARP2), Version 15197. The HARP2 air dispersion and modeling tool (ADMRT) module was used in the analysis. The ADMRT module imported the plot file output from the AERMOD air dispersion modeling results. Similar to the 2003 OEHAA guidance, the 2015 OEHHA guidance uses exposure assumptions and pollutant-specific cancer potency values and chronic/acute RELs from OEHHA to predict potential health impacts in terms of lifetime cancer risk, HIA, and HIC.

Following the 2015 OEHHA guidance and the 2015 SCAQMD guidance, the HRA estimated potential health impacts associated with the following exposure routes: dermal absorption, and ingestion of homegrown produce, soil, and mother's milk. The RMP-Derived Method was used for analysis of cancer risks for residential and sensitive receptors, and the OEHHA-Derived Method was used for analysis of cancer risks for workplace receptors. The exposure duration for cancer risks at residential and sensitive receptors was assumed to be 24 hours per day continuously for 30 years. For cancer risks at workplace receptors, the exposure duration was assumed to be 8 hours per day, 5 days per week, for 25 years.

The risk calculations for chronic and acute health impacts do not differ between the 2003 OEHHA guidance and 2015 OEHHA guidance. The chronic risks are assessed by comparing the annual TAC ground level concentrations (the potential exposure levels) to the chronic RELs developed by OEHHA to obtain a HIC. The acute risks are assessed by comparing the 1-hour maximum TAC ground level concentrations with the acute RELs developed by OEHHA to obtain the HIA. The OEHHA RELs for chronic and acute risks remain the same for the 2003 and 2015 OEHHA guidance.

The list of chemicals and the associated health values used in the HRA modeling for both the 2003 OEHHA guidance and 2015 OEHHA guidance are provided in Table H-2.

Table H-2. List of Chemicals Included in the HRA and Their OEHHA/CARB-Approved Risk Assessment Health Values

*Chiquita Canyon Landfill Partially Recirculated Draft EIR*

| Chemical | Chemical Abstracts Service | Inhalation Unit Risk $(\mu g/m^3)^{-1}$ | Inhalation Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$ | Oral Slope Factor $(mg/kg\text{-}d)^{-1}$ | Acute Inhalation $(\mu g/m^3)$ | Chronic Inhalation $(\mu g/m^3)$ |
|---|---|---|---|---|---|---|
| Hydrogen Sulfide | 7783-06-4 | | | | 42 | 10 |
| Benzene | 71-43-2 | 2.90E-05 | 0.1 | | 27 | 3 |
| Benzyl Chloride | 100-44-7 | 4.90E-05 | 0.17 | | 240 | |
| Chlorobenzene | 108-90-7 | | | | | 1,000 |
| 1,1-Dichloroethane (Ethylidene dichloride) | 75-34-3 | 1.60E-06 | 0.0057 | | | |
| Ethylene Dichloride (1,2-Dichloroethane) | 107-06-2 | 2.10E-05 | 0.072 | | | 400 |
| Vinylidene Chloride (1,1-Dichloroethylene) | 75-35-4 | | | | | 70 |
| Methylene Chloride (Dichloromethane) | 75-09-2 | 1.00E-06 | 0.0035 | | 14,000 | 400 |
| Ethylene Dibromide (1,2-Dibromoethane) | 106-93-4 | 7.10E-05 | 0.25 | | | 0.8 |
| Perchloroethylene (Tetrachloroethylene) | 127-18-4 | 5.90E-06 | 0.021 | | 20,000 | 35 |
| Carbon Tetrachloride | 56-23-5 | 4.20E-05 | 0.15 | | 1,900 | 40 |
| Toluene | 108-88-3 | | | | 37,000 | 300 |
| Methyl Chloroform (1,1,1-Trichloroethane) | 71-55-6 | | | | 68,000 | 1,000 |
| Trichloroethylene | 79-01-6 | 2.00E-06 | 0.007 | | | 600 |
| Chloroform | 67-66-3 | 5.30E-06 | 0.019 | | 150 | 300 |
| Vinyl Chloride | 75-01-4 | 7.80E-05 | 0.27 | | 180,000 | |
| Xylenes | 1330-20-7 | | | | 22,000 | 700 |
| Ammonia | 7664-41-7 | | | | 3,200 | 200 |
| Diesel Particulate Matter | 9901 | 0.0003 | 1.1 | | | 5 |

Notes:

$\mu g/m^3$ = micrograms per cubic meter

mg/kg-d = milligrams per kilograms per day

Source: OEHHA, 2015b

For the purposes of quantifying emission increases and performing HRA analysis, impacts were characterized for both construction and operation of the Proposed Project. Emission sources associated with the operation of the Proposed Project were divided into five categories: (1) LFG flares, (2) fugitive LFG emissions, (3) onsite equipment and vehicle travel, (4) fugitive emissions from composting, and (5) offsite vehicle travel. The emissions increases from the first four source categories are onsite emissions associated with operation of the Proposed Project. The fifth category includes the offsite diesel particulate matter (DPM) emissions from the associated vehicles, which include waste trucks, landfill employee vehicles, and construction employee vehicles, traveling on a 3-mile portion of State Route 126 (SR-126) between the landfill and Interstate 5, to and from the landfill. The offsite diesel emissions were included in the HRA to represent a more conservative case for future operations.

For determining impacts during construction, emission sources were only categorized for the onsite areas where active construction would be occurring. These sources were characterized as fugitive dust and construction equipment exhaust.

For modeling, the emissions were divided into short-term emissions (for acute risks) and long-term emissions (for cancer and chronic risks). The 2039 year was chosen for the short-term emissions analysis, because it represented the highest flare and fugitive LFG emissions. The short-term emissions were modeled over the landfill area that would be active in 2039. For example, Module 12 was not included because operation would occur after 2039. The compost facility fugitive emissions were included only over a specific footprint. In addition, the short-term emissions due to construction and operation vehicle exhaust (emitted as DPM) were not included because acute health values are not available for DPM.

Long-term emissions were calculated using the highest 30 year average emissions. The fugitive LFG emissions were assumed to emit at the same levels over the entire landfill footprint. Similarly, the fugitive compost emissions were evenly allocated to the entire footprint of the landfill (in contrast to the short-term fugitive compost emissions which emitted over a specific footprint). The exhaust emissions estimated for construction vehicles were equally allocated over the modules to be constructed (Modules 6 through 12). The compost construction vehicle exhaust emissions were added to the module construction vehicle exhaust emissions.

The receptors used in the risk assessment for the Proposed Project were different than those used in the cumulative analysis. The receptors for the Proposed Project were based on a grid that covered residences and commercial properties out to approximately 7 kilometers from the property boundary. Receptors were not included in locations where the terrain proved too steep for development according to aerial, topographic, and elevation maps. The cumulative analysis included receptors similar to the Proposed Project analysis, but added receptors for proposed new developments, such as Newhall Ranch.

The predicted cancer and noncancer health risks associated with exposure to TAC emissions from the Proposed Project at selected locations were compared to the applicable SCAQMD significance thresholds. Maximally exposed individual (MEI) locations were selected from the modeled receptor grids for residential and workplace receptors. The residential MEI (MEIR) was selected from receptors in residential areas in the facility vicinity, especially in the areas northwest and northeast of the landfill. The workplace MEI (MEIW) was selected from receptors in commercial areas near the facility.

If a predicted cancer risk, per individual unit, was greater than 1 in 1 million, the cancer burden was calculated for each census block receptor. Cancer burden is defined as the estimated increase in the occurrence of cancer cases in a population resulting from exposure to carcinogenic air contaminants. The cancer burden analysis was conducted based on both the 2011 and 2015 SCAQMD guidelines. Following the 2011 SCAQMD guidelines, cancer risk was determined using the same cancer risk methodology described above, taken from the 2003 OEHHA guidance, with census blocks. Following the 2015 SCAQMD guidelines, a HARP2 analysis on census block receptors was conducted using a 70 year exposure and the RMP-Derived Method. For both analyses, cancer burden was calculated by multiplying risk by population, as associated with the census block receptors, for receptors indicating cancer risk values above 1 in 1 million. Population data for census block receptors were based on the population information within the HARP 2 database for both analyses.

### H1.4.1 Uncertainty of Risk Assessments

The risk assessment process carries a substantial level of uncertainty. From the onset, there is uncertainty in the assumptions used in calculating the TAC emission inventory for the proposed project. This includes uncertainties in assumptions about future construction, operations, and equipment, and limited or unavailable emission factors for emission estimation. For example, construction and operation emissions do not occur simultaneously throughout the life of the project.

Additional uncertainty stems from risk factors and health effects values that are derived from animal studies or surveys of occupational exposure, under conditions that differ significantly from human residential or workplace exposure. Uncertainty also exists in applying to the general population results generated for individuals at specific locations (i.e., locations where the highest TAC impacts associated with landfill operations are expected to occur).

In order to address these uncertainties, HRAs for TACs are prepared in a manner that substantially overstates the risks in order to assure protection of public health. They are based on "worst-plausible" assumptions describing the potential for exposure to emissions from a facility. The methods used to evaluate cancer risks are designed to provide the highest possible estimate of risk associated with the worst-case exposure scenario. The methods used to evaluate the potential for other kinds of adverse health effects are based on protection of sensitive members of the population. The results are considered to be worst-plausible estimates, representing the upper limits of risk (i.e., the real risks are not expected to be as high as the predicted numbers, and may be substantially lower).

# H1.5 CO Hotspot Analysis

Localized impacts due to CO emissions from the Proposed Project were assessed using the California LINE Source Dispersion Model, Version 4 (CALINE4). Potential CO concentrations in the vicinity of the affected intersections for the existing year 2015 and the project year 2017 were estimated. This is consistent with the traffic analysis described in Chapter 10.0, Traffic and Transportation, of the Original EIR. CO concentrations for year 2017 are expected to be higher than CO concentrations for future project years due to ongoing improvements in vehicle exhaust emission control technology.

Five signalized intersections were screened using level of service (LOS) and traffic data estimates to identify the intersections where exhaust from vehicle traffic would be most likely to create a CO hot spot. The University of California, Davis *Transportation Project-Level Carbon Monoxide Protocol* recommends further analysis at signalized intersections where the LOS is E or F, or where the LOS is degraded to E or F as a result of the project (Niemeier et al., 1997). Signalized intersections where the LOS was D were also considered, due to the high percentage of heavy duty trucks in the vehicle mix. Using these criteria, two intersections were identified as areas where potential CO hot spots could occur: SR-126 and Wolcott Way, which is at the entrance to the landfill, and SR-126 and Commerce Center Drive.

The CO hotspot modeling was performed according to the methodology outlined in the University of California, Davis *Transportation Project-Level Carbon Monoxide Protocol*. CO emissions were calculated using factors from EMFAC2014. All receptors used were located at a height of 1.8 meters. Receptors for the intersection analysis were located 3 meters from the roadway so they were not within the mixing zone of the travel lanes and were spaced at 0, 25, and 50 meters from the intersection for both the 1-hour and 8-hour analyses (Niemeier et al., 1997). The predicted concentrations were compared to the National and California Ambient Air Quality Standards for CO to determine whether the Proposed Project would cause a hotspot at the intersection.

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## CCLF Modeled Criteria Pollutant Emissions

| | Emissions (gram per second per source) [1] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Point/Volume Sources** | **1-hr CO** | **8-hr CO** | **1-hr NO2** | **Annual NO2** | **1-hr SO2** | **3-hr SO2** | **24-hr SO2** | **24-hr PM10** | **Annual PM10** | **24-hr PM2.5** | **Annual PM2.5** |
| Flares | 2.49E-01 | 2.49E-01 | 2.49E-01 | 2.49E-01 | 3.26E-01 | 3.26E-01 | 3.26E-01 | 2.52E-02 | 2.52E-02 | 2.52E-02 | 2.52E-02 |
| Module 11 Operation Exhaust | 5.24E-03 | 5.24E-03 | 6.52E-04 | 1.79E-04 | 1.86E-05 | 1.86E-05 | 5.73E-06 | 5.01E-06 | 4.28E-06 | 5.01E-06 | 4.28E-06 |
| Module 12 Construction Exhaust | 3.42E-02 | 3.42E-02 | 3.95E-03 | 2.80E-04 | 1.28E-04 | 1.28E-04 | 5.09E-05 | 4.82E-05 | 8.55E-06 | 4.82E-05 | 8.55E-06 |
| Composting Operation Exhaust | 2.78E-03 | 2.78E-03 | 3.16E-04 | 2.93E-05 | 7.05E-06 | 7.05E-06 | 7.64E-07 | 1.06E-06 | 9.04E-07 | 1.06E-06 | 9.04E-07 |
| Truck Idle | 2.78E-04 | 2.78E-04 | 4.87E-03 | 1.19E-03 | 2.87E-06 | 2.87E-06 | 1.20E-06 | 2.73E-06 | 1.60E-06 | 2.61E-06 | 1.53E-06 |
| Onsite Paved Roads | 1.97E-04 | 1.97E-04 | 1.43E-02 | 4.32E-03 | 5.38E-05 | 5.38E-05 | 2.24E-05 | 9.49E-02 | 5.64E-02 | 2.33E-02 | 1.38E-02 |
| Onsite Unpaved Roads | 5.02E-05 | 5.02E-05 | 3.65E-03 | 1.10E-03 | 1.37E-05 | 1.37E-05 | 5.73E-06 | 5.39E-02 | 3.18E-02 | 5.40E-03 | 3.18E-03 |

| | Emissions (grams per second per square meter) [1] | | | |
|---|---|---|---|---|
| **Area Sources** | **24-hr PM10** | **Annual PM10** | **24-hr PM2.5** | **Annual PM2.5** |
| Module 11 Operation Fugitive Dust | 9.41E-07 | 7.31E-07 | 1.96E-07 | 1.52E-07 |
| Module 12 Construction Fugitive Dust | 1.39E-05 | 2.21E-06 | 2.88E-06 | 4.52E-07 |
| Composting Operation Fugitive Dust | 1.33E-07 | 1.14E-07 | 6.23E-08 | 5.32E-08 |

[1] Emissions incorporate peak daily truck trip counts, with the exception of annual emissions, which are based on average daily truck trip counts.

## CCLF Landfill Toxic Emissions 85.0% Control

| | Short Term 2039; Long Term 30 year average | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Compost | | Flare | | Per Flare | | Total Operation LFG | | Main Landfill | | Module 6 | | Module 7 | | Module 8 | | Module 9 | | Module 10 | | Module 11 | | Module 12 | |
| | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year |
| Hydrogen sulfide 2 | 0 | 0 | 6.32E-04 | 3.59E+00 | 3.16E-04 | 1.80E+00 | 8.42E-01 | 6247.1 | 4.94E-01 | 3477 | 4.16E-02 | 292.6 | 4.90E-02 | 344.9 | 3.30E-02 | 232.2 | 8.11E-02 | 570.2 | 7.65E-02 | 537.8 | 6.64E-02 | 467.2 | 0 | 325.6 |
| Benzene 2 | 0 | 0 | 5.79E-06 | 3.29E-02 | 2.90E-06 | 1.65E-02 | 9.74E-02 | 722.6 | 5.72E-02 | 402.1 | 4.81E-03 | 33.84 | 5.67E-03 | 39.89 | 3.82E-03 | 26.86 | 9.38E-03 | 65.95 | 8.85E-03 | 62.21 | 7.69E-03 | 54.04 | 0 | 37.66 |
| Benzylchloride 2 | 0 | 0 | 1.76E-05 | 1.00E-01 | 8.80E-06 | 5.00E-02 | 9.23E-03 | 68.46 | 5.42E-03 | 38.10 | 4.56E-04 | 3.206 | 5.37E-04 | 3.779 | 3.62E-04 | 2.544 | 8.89E-04 | 6.248 | 8.38E-04 | 5.893 | 7.28E-04 | 5.120 | 0 | 3.567 |
| Chlorobenzene 2 | 0 | 0 | 1.04E-05 | 5.93E-02 | 5.22E-06 | 2.97E-02 | 6.91E-03 | 51.26 | 4.06E-03 | 28.53 | 3.41E-04 | 2.401 | 4.02E-04 | 2.830 | 2.71E-04 | 1.905 | 6.65E-04 | 4.679 | 6.28E-04 | 4.413 | 5.45E-04 | 3.834 | 0 | 2.671 |
| Dichlorobenzene 2 | 0 | 0 | 2.72E-05 | 1.55E-01 | 1.36E-05 | 7.75E-02 | 3.41E-02 | 252.7 | 2.00E-02 | 140.6 | 1.68E-03 | 11.84 | 1.98E-03 | 13.95 | 1.34E-03 | 9.393 | 3.28E-03 | 23.07 | 3.09E-03 | 21.76 | 2.69E-03 | 18.90 | 0 | 13.17 |
| 31,1-Dichloroethane 2 | 0 | 0 | 9.17E-06 | 5.21E-02 | 4.59E-06 | 2.61E-02 | 6.08E-03 | 45.07 | 3.57E-03 | 25.08 | 3.00E-04 | 2.111 | 3.54E-04 | 2.488 | 2.38E-04 | 1.675 | 5.85E-04 | 4.114 | 5.52E-04 | 3.880 | 4.79E-04 | 3.371 | 0 | 2.349 |
| 1,2-Dichloroethane 2 | 0 | 0 | 9.17E-06 | 5.21E-02 | 4.59E-06 | 2.61E-02 | 1.53E-02 | 113.2 | 8.96E-03 | 63.02 | 7.54E-04 | 5.303 | 8.89E-04 | 6.251 | 5.99E-04 | 4.209 | 1.47E-03 | 10.34 | 1.39E-03 | 9.748 | 1.20E-03 | 8.469 | 0 | 5.901 |
| 1,1-Dichloroethylene 2 | 0 | 0 | 8.98E-06 | 5.11E-02 | 4.49E-06 | 2.55E-02 | 5.95E-03 | 44.15 | 3.49E-03 | 24.57 | 2.94E-04 | 2.068 | 3.47E-04 | 2.437 | 2.33E-04 | 1.641 | 5.73E-04 | 4.030 | 5.41E-04 | 3.801 | 4.70E-04 | 3.302 | 0 | 2.301 |
| Dichloromethane 2 | 0 | 0 | 1.68E-05 | 9.55E-02 | 8.40E-06 | 4.77E-02 | 2.11E-02 | 156.7 | 1.24E-02 | 87.19 | 1.04E-03 | 7.337 | 1.23E-03 | 8.649 | 8.28E-04 | 5.823 | 2.03E-03 | 14.30 | 1.92E-03 | 13.49 | 1.67E-03 | 11.72 | 0 | 8.164 |
| 1,2-dibromoethane 2 | 0 | 0 | 1.74E-05 | 9.90E-02 | 8.71E-06 | 4.95E-02 | 1.15E-02 | 85.56 | 6.77E-03 | 47.61 | 5.70E-04 | 4.007 | 6.72E-04 | 4.723 | 4.52E-04 | 3.180 | 1.11E-03 | 7.809 | 1.05E-03 | 7.365 | 9.10E-04 | 6.399 | 0 | 4.459 |
| Perchloroethene 2 | 0 | 0 | 1.23E-05 | 6.99E-02 | 6.15E-06 | 3.50E-02 | 3.52E-02 | 261.0 | 2.07E-02 | 145.3 | 1.74E-03 | 12.22 | 2.05E-03 | 14.41 | 1.38E-03 | 9.701 | 3.39E-03 | 23.83 | 3.20E-03 | 22.47 | 2.78E-03 | 19.52 | 0 | 13.60 |
| Carbon tetrachloride 2 | 0 | 0 | 1.14E-05 | 6.48E-02 | 5.70E-06 | 3.24E-02 | 8.26E-03 | 61.30 | 4.85E-03 | 34.11 | 4.08E-04 | 2.871 | 4.81E-04 | 3.384 | 3.24E-04 | 2.278 | 7.96E-04 | 5.595 | 7.50E-04 | 5.277 | 6.52E-04 | 4.584 | 0 | 3.194 |
| Toluene 2 | 0 | 0 | 3.31E-05 | 1.88E-01 | 1.65E-05 | 9.40E-02 | 9.26E-01 | 6871 | 5.44E-01 | 3824 | 4.58E-02 | 321.8 | 5.39E-02 | 379.3 | 3.63E-02 | 255.4 | 8.92E-02 | 627.1 | 8.41E-02 | 591.5 | 7.31E-02 | 513.9 | 0 | 358.0 |
| 1,1,1-trichloroethane 2 | 0 | 0 | 9.89E-06 | 5.62E-02 | 4.95E-06 | 2.81E-02 | 7.17E-03 | 53.16 | 4.21E-03 | 29.58 | 3.54E-04 | 2.490 | 4.17E-04 | 2.935 | 2.81E-04 | 1.976 | 6.90E-04 | 4.852 | 6.51E-04 | 4.576 | 5.65E-04 | 3.976 | 0 | 2.770 |
| Trichloroethene 2 | 0 | 0 | 9.74E-06 | 5.54E-02 | 4.87E-06 | 2.77E-02 | 7.06E-03 | 52.36 | 4.14E-03 | 29.14 | 3.49E-04 | 2.452 | 4.11E-04 | 2.891 | 2.77E-04 | 1.946 | 6.80E-04 | 4.779 | 6.41E-04 | 4.508 | 5.57E-04 | 3.916 | 0 | 2.729 |
| Chloroform 2 | 0 | 0 | 8.85E-06 | 5.03E-02 | 4.43E-06 | 2.52E-02 | 6.41E-03 | 47.57 | 3.77E-03 | 26.47 | 3.17E-04 | 2.228 | 3.73E-04 | 2.626 | 2.51E-04 | 1.768 | 6.18E-04 | 4.342 | 5.82E-04 | 4.095 | 5.06E-04 | 3.558 | 0 | 2.479 |
| Vinyl chloride 2 | 0 | 0 | 5.79E-06 | 3.29E-02 | 2.90E-06 | 1.65E-02 | 3.36E-03 | 24.91 | 1.97E-03 | 13.86 | 1.66E-04 | 1.166 | 1.96E-04 | 1.375 | 1.32E-04 | 0.926 | 3.23E-04 | 2.273 | 3.05E-04 | 2.144 | 2.65E-04 | 1.863 | 0 | 1.298 |
| m-Xylene 2 | 0 | 0 | 9.84E-06 | 5.59E-02 | 4.92E-06 | 2.80E-02 | 5.13E-01 | 3807 | 3.01E-01 | 2119 | 2.54E-02 | 178.3 | 2.99E-02 | 210.2 | 2.01E-02 | 141.5 | 4.94E-02 | 347.5 | 4.66E-02 | 327.8 | 4.05E-02 | 284.8 | 0 | 198.4 |
| o+p-Xylene 2 | 0 | 0 | 9.84E-06 | 5.59E-02 | 4.92E-06 | 2.80E-02 | 1.48E-01 | 1097 | 8.68E-02 | 610.4 | 7.31E-03 | 51.37 | 8.61E-03 | 60.56 | 5.80E-03 | 40.77 | 1.42E-02 | 100.1 | 1.34E-02 | 94.43 | 1.17E-02 | 82.04 | 0 | 57.16 |
| **Total Xylenes** | 0 | 0 | **1.97E-05** | **1.12E-01** | **9.84E-06** | **5.59E-02** | **6.61E-01** | **4904** | **3.88E-01** | **2729** | **3.27E-02** | **229.7** | **3.85E-02** | **270.7** | **2.59E-02** | **182.3** | **6.37E-02** | **447.6** | **6.00E-02** | **422.2** | **5.22E-02** | **366.8** | **0** | **255.6** |
| Ammonia | 3.08 | | 0 | 0 | 0 | 0 | 0 | 23,088 | 0 | 12849 | 0 | 1081 | 0 | 1275 | 0 | 858.1 | 0 | 2107 | 0 | 1988 | | 1727 | 0 | 1203 |

# CCLF Truck Toxic Emissions - Average Counts

| | 30 year average | |
|---|---|---|
| **Diesel PM Exhaust Emissions** | **lb/hr** | **lb/yr** |
| Compost Operation | No DPM health values for acute health index | 8.120E-03 |
| Compost Construction | | 1.160E-02 |
| Main Landfill Operation | | 2.788E-02 |
| Module 6 Operation | | 2.788E-02 |
| Module 6 Construction | | 5.554E-01 |
| **Module 6 Total** | | **5.833E-01** |
| Module 7 Operation | | 2.788E-02 |
| Module 7 Construction | | 3.022E-02 |
| **Module 7 Total** | | **5.810E-02** |
| Module 8 Operation | | 2.788E-02 |
| Module 8 Construction | | 3.803E-02 |
| **Module 8 Total** | | **6.591E-02** |
| Module 9 Operation | | 2.788E-02 |
| Module 9 Construction | | 2.376E-02 |
| **Module 9 Total** | | **5.164E-02** |
| Module 10 Operation | | 2.788E-02 |
| Module 10 Construction | | 2.269E-02 |
| **Module 10 Total** | | **5.057E-02** |
| Module 11 Operation | | 2.788E-02 |
| Module 11 (construction) | | 2.541E-02 |
| **Module 11 Total** | | **5.329E-02** |
| Module 12 (operation) | | 2.788E-02 |
| Module 12 (construction) | | 3.142E-02 |
| **Module 12 Total** | | **5.930E-02** |
| Operation Onsite unpaved | | 7.667E-02 |
| Construction Onsite unpaved | | 9.030E-05 |
| **Total Onsite Unpaved** | | **7.676E-02** |
| Operation Onsite paved | | 2.999E-01 |
| Construction Onsite paved | | 1.254E-05 |
| **Total Onsite Paved** | | **3.000E-01** |
| Compost Construction Offsite | | 5.152E-04 |
| Operation Offsite | | 8.152E-02 |
| Construction Offsite | | 2.335E-03 |
| **Total Offsite** | | **8.437E-02** |
| Idle | | 1.292E-01 |
| Entrance Construction | | 7.262E-01 |
| **Entrance Total** | | **8.554E-01** |

# CCLF Truck Toxic Emissions - Peak Counts

| | 30 year average | |
|---|---|---|
| **Diesel PM Exhaust Emissions** | **lb/hr** | **lb/yr** |
| Compost Operation | No DPM health values for acute health index | 8.120E-03 |
| Compost Construction | | 1.160E-02 |
| Main Landfill Operation | | 2.788E-02 |
| Module 6 Operation | | 2.788E-02 |
| Module 6 Construction | | 5.554E-01 |
| **Module 6 Total** | | **5.833E-01** |
| Module 7 Operation | | 2.788E-02 |
| Module 7 Construction | | 3.022E-02 |
| **Module 7 Total** | | **5.810E-02** |
| Module 8 Operation | | 2.788E-02 |
| Module 8 Construction | | 3.803E-02 |
| **Module 8 Total** | | **6.591E-02** |
| Module 9 Operation | | 2.788E-02 |
| Module 9 Construction | | 2.376E-02 |
| **Module 9 Total** | | **5.164E-02** |
| Module 10 Operation | | 2.788E-02 |
| Module 10 Construction | | 2.269E-02 |
| **Module 10 Total** | | **5.057E-02** |
| Module 11 Operation | | 2.788E-02 |
| Module 11 (construction) | | 2.541E-02 |
| **Module 11 Total** | | **5.329E-02** |
| Module 12 (operation) | | 2.788E-02 |
| Module 12 (construction) | | 3.142E-02 |
| **Module 12 Total** | | **5.930E-02** |
| Operation Onsite unpaved | | 1.051E-01 |
| Construction Onsite unpaved | | 9.030E-05 |
| **Total Onsite Unpaved** | | **1.052E-01** |
| Operation Onsite paved | | 4.113E-01 |
| Construction Onsite paved | | 1.254E-05 |
| **Total Onsite Paved** | | **4.113E-01** |
| Compost Construction Offsite | | 5.152E-04 |
| Operation Offsite | | 1.116E-01 |
| Construction Offsite | | 2.335E-03 |
| **Total Offsite** | | **1.144E-01** |
| Idle | | 1.885E-01 |
| Entrance Construction | | 7.262E-01 |
| **Entrance Total** | | **9.147E-01** |

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions

**Year: 2017**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 35.66 | 59.10 | 9.09 | 1.10E-01 | 2.77E+00 | 2.55E+00 | 17.48 | 3.63 | N/A | 220.85 | 396.48 | 59.67 | 0.73 | 17.87 | 16.44 | 174.75 | 36.35 | N/A | 20,893.04 | 36,334.09 | 5,536.03 | 67.48 | 1,647.81 | 1,515.99 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 1.61 | 0.13 | 0.03 | 4.62E-03 | 2.70E-03 | 2.48E-03 | 1.05 | 0.27 | N/A | 64.34 | 5.35 | 1.37 | 0.18 | 0.11 | 0.10 | 42.01 | 10.79 | N/A | 7,720.68 | 642.19 | 163.80 | 22.18 | 12.94 | 11.91 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.01 | 0.00 | 0.00 | 1.36E-05 | 1.44E-05 | 1.33E-05 | 0.84 | 0.10 | N/A | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.37 | 0.39 | N/A | 5.12 | 0.47 | 0.13 | 0.01 | 0.01 | 0.01 | 404.90 | 46.47 | N/A |
| Yearly Construction Total | 37.27 | 59.24 | 9.12 | 1.14E-01 | 2.77E+00 | 2.55E+00 | 19.37 | 4.00 | N/A | 285.24 | 401.84 | 61.04 | 0.91 | 17.97 | 16.54 | 220.13 | 47.52 | N/A | 28,618.85 | 36,976.75 | 5,699.96 | 89.67 | 1,660.76 | 1,527.90 | 15,343.04 | 3,399.68 | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 6.33 | 0.87 | 0.16 | 0.02 | 0.02 | 0.02 | 17.25 | 3.59 | N/A | 1,973.88 | 272.49 | 50.29 | 7.44 | 6.51 | 6.51 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.24 | 12.28 | 0.04 | 3.20E-02 | 2.75E-02 | 2.63E-02 | 0.77 | 0.21 | N/A | 1.47 | 122.70 | 0.34 | 0.32 | 0.27 | 0.26 | 7.06 | 1.89 | N/A | 459.96 | 38,283.33 | 106.90 | 98.94 | 85.19 | 81.49 | 2,203.17 | 589.16 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.03 | 0.84 | 0.01 | 1.99E-03 | 3.70E-03 | 3.54E-03 | 9.20 | 1.94 | N/A | 0.27 | 8.44 | 0.07 | 0.02 | 0.04 | 0.04 | 92.04 | 19.40 | N/A | 83.33 | 2,632.28 | 23.19 | 6.22 | 11.53 | 11.04 | 28,717.50 | 6,051.93 | N/A |
| Yearly Operational Total | 6.64 | 13.91 | 0.20 | 5.66E-02 | 5.17E-02 | 5.04E-02 | 11.70 | 2.50 | N/A | 8.07 | 132.01 | 0.58 | 0.36 | 0.33 | 0.32 | 116.35 | 24.87 | N/A | 2,517.17 | 41,188.10 | 180.37 | 112.59 | 103.23 | 99.04 | 35,815.95 | 7,659.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Compost Process Emissions | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Compost Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.00 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Yearly Total** | **43.91** | **73.15** | **9.32** | **0.17** | **2.83** | **2.60** | **31.07** | **6.50** | **0.00** | **293.30** | **533.85** | **61.62** | **1.27** | **18.30** | **16.85** | **336.49** | **72.40** | **0.00** | **31,136.01** | **78,164.85** | **5,880.33** | **202.27** | **1,763.99** | **1,626.94** | **51,158.98** | **11,058.99** | **0.00** |

**Year: 2018**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 14.07 | 21.87 | 3.59 | 4.49E-02 | 9.51E-01 | 8.75E-01 | 7.27 | 1.51 | N/A | 109.46 | 190.37 | 30.90 | 0.39 | 7.42 | 6.83 | 72.72 | 15.13 | N/A | 7,249.56 | 11,327.96 | 1,739.01 | 23.60 | 479.27 | 440.93 | 2,778.38 | 577.90 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.72 | 0.06 | 0.01 | 2.25E-03 | 1.34E-03 | 1.23E-03 | 0.53 | 0.13 | N/A | 14.36 | 1.18 | 0.27 | 0.04 | 0.03 | 0.02 | 10.50 | 2.70 | N/A | 1,723.72 | 141.17 | 32.95 | 5.40 | 3.21 | 2.95 | 1,260.22 | 323.65 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.02 | 0.00 | 0.00 | 2.65E-05 | 2.63E-05 | 2.42E-05 | 1.69 | 0.19 | N/A | 0.15 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 13.50 | 1.55 | N/A | 17.81 | 1.62 | 0.38 | 0.03 | 0.03 | 0.02 | 1,619.61 | 185.87 | N/A |
| Yearly Construction Total | 14.81 | 21.93 | 3.60 | 4.72E-02 | 9.52E-01 | 8.76E-01 | 9.48 | 1.84 | N/A | 123.97 | 191.56 | 31.18 | 0.44 | 7.45 | 6.85 | 96.72 | 19.37 | N/A | 8,991.09 | 11,470.75 | 1,772.35 | 29.02 | 482.51 | 443.91 | 5,658.21 | 1,087.42 | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 12.65 | 1.75 | 0.32 | 0.05 | 0.04 | 0.04 | 17.25 | 3.59 | N/A | 3,947.76 | 544.98 | 100.57 | 14.88 | 13.02 | 13.02 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.43 | 24.14 | 0.06 | 6.39E-02 | 4.71E-02 | 4.51E-02 | 1.54 | 0.41 | N/A | 2.54 | 241.27 | 0.58 | 0.63 | 0.47 | 0.45 | 14.12 | 3.78 | N/A | 792.23 | 75,277.72 | 179.82 | 197.78 | 146.08 | 139.75 | 4,406.33 | 1,178.33 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.05 | 1.64 | 0.01 | 3.98E-03 | 6.14E-03 | 5.87E-03 | 18.41 | 3.88 | N/A | 0.48 | 16.37 | 0.13 | 0.04 | 0.06 | 0.06 | 184.09 | 38.79 | N/A | 148.36 | 5,106.85 | 40.77 | 12.43 | 19.15 | 18.32 | 57,435.00 | 12,103.85 | N/A |
| Yearly Operational Total | 6.84 | 26.57 | 0.23 | 9.05E-02 | 7.39E-02 | 7.15E-02 | 21.67 | 4.65 | N/A | 15.67 | 259.39 | 1.03 | 0.72 | 0.57 | 0.55 | 215.46 | 46.16 | N/A | 4,888.35 | 80,929.55 | 321.16 | 225.09 | 178.24 | 171.09 | 66,736.61 | 14,300.40 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Compost Process Emissions | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Compost Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Yearly Total** | **21.65** | **48.50** | **3.83** | **0.14** | **1.03** | **0.95** | **31.16** | **6.49** | **0.00** | **139.64** | **450.95** | **32.21** | **1.16** | **8.02** | **7.40** | **312.18** | **65.53** | **0.00** | **13,879.44** | **92,400.30** | **2,093.51** | **254.11** | **660.75** | **614.99** | **72,394.82** | **15,387.82** | **0.00** |

**Year: 2019**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 18.98 | 2.62 | 0.48 | 0.07 | 0.06 | 0.06 | 17.25 | 3.59 | N/A | 5,921.64 | 817.47 | 150.86 | 22.32 | 19.53 | 19.53 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.58 | 35.63 | 0.08 | 9.58E-02 | 6.37E-02 | 6.10E-02 | 2.31 | 0.62 | N/A | 3.44 | 356.14 | 0.77 | 0.95 | 0.63 | 0.61 | 21.18 | 5.67 | N/A | 1,074.24 | 111,114.35 | 239.43 | 296.32 | 197.31 | 188.79 | 6,609.50 | 1,767.49 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.07 | 2.39 | 0.02 | 5.97E-03 | 8.09E-03 | 7.74E-03 | 27.61 | 5.82 | N/A | 0.66 | 23.92 | 0.18 | 0.06 | 0.08 | 0.08 | 276.13 | 58.19 | N/A | 206.73 | 7,464.50 | 55.93 | 18.62 | 25.24 | 24.15 | 86,152.50 | 18,155.78 | N/A |
| Yearly Operational Total | 7.01 | 38.82 | 0.26 | 1.24E-01 | 9.24E-02 | 8.93E-02 | 31.65 | 6.79 | N/A | 23.09 | 382.68 | 1.43 | 1.08 | 0.78 | 0.75 | 314.56 | 67.44 | N/A | 7,202.61 | 119,396.32 | 446.22 | 337.27 | 242.07 | 232.47 | 97,657.27 | 20,941.49 | N/A |
| On-Site Compost Facility Construction Sources | 11.18 | 13.95 | 1.29 | 0.02 | 0.68 | 0.63 | 0.56 | 0.31 | N/A | 89.46 | 111.64 | 10.34 | 0.12 | 5.46 | 5.03 | 4.52 | 2.48 | N/A | 11,090.94 | 13,526.21 | 1,262.45 | 14.76 | 673.98 | 620.06 | 896.12 | 469.16 | N/A |
| Off-Site Compost Facility Construction Sources | 0.43 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 | N/A | 3.42 | 0.27 | 0.18 | 0.01 | 0.01 | 0.01 | 0.27 | 0.07 | N/A | 443.88 | 35.44 | 23.62 | 1.30 | 0.78 | 0.72 | 103.55 | 27.47 | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 17.53 | 14.66 | 23.26 | 3.16E-02 | 7.05E-01 | 6.50E-01 | 2.22 | 1.08 | 3.08 | 108.28 | 113.66 | 533.92 | 0.17 | 5.52 | 5.09 | 9.01 | 4.52 | 74.00 | 16,339.62 | 14,107.65 | 164,586.87 | 28.23 | 691.60 | 637.62 | 2,316.44 | 1,110.84 | 23,088.00 |
| **Yearly Total** | **24.55** | **53.48** | **23.52** | **0.16** | **0.80** | **0.74** | **33.87** | **7.87** | **3.08** | **131.37** | **496.34** | **535.35** | **1.25** | **6.30** | **5.83** | **323.57** | **71.97** | **74.00** | **23,542.23** | **133,503.97** | **165,033.09** | **365.50** | **933.67** | **870.09** | **99,973.71** | **22,052.32** | **23,088.00** |

**Year: 2020**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 25.31 | 3.49 | 0.64 | 0.10 | 0.08 | 0.08 | 17.25 | 3.59 | N/A | 7,895.52 | 1,089.97 | 201.14 | 29.76 | 26.04 | 26.04 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.69 | 46.26 | 0.08 | 0.13 | 0.07 | 0.07 | 3.09 | 0.36 | N/A | 4.44 | 743.71 | 0.69 | 2.19 | 0.64 | 0.61 | 28.13 | 7.52 | N/A | 1,184.82 | 144,263.62 | 244.65 | 392.40 | 213.76 | 204.50 | 8,775.19 | 2,346.46 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.08 | 3.06 | 0.02 | 0.01 | 0.01 | 0.01 | 36.59 | 7.71 | N/A | 0.75 | 30.59 | 0.20 | 0.08 | 0.08 | 0.08 | 365.93 | 77.12 | N/A | 234.64 | 9,544.90 | 61.86 | 24.65 | 25.78 | 24.66 | 114,169.58 | 24,060.10 | N/A |
| Yearly Operational Total | 7.14 | 50.11 | 0.26 | 1.57E-01 | 9.80E-02 | 9.47E-02 | 41.40 | 8.43 | N/A | 30.49 | 777.80 | 1.53 | 2.37 | 0.81 | 0.77 | 411.30 | 88.22 | N/A | 9,314.97 | 154,898.49 | 507.65 | 446.82 | 265.58 | 255.20 | 127,840.05 | 27,424.78 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **13.06** | **50.79** | **22.21** | **0.17** | **0.12** | **0.12** | **43.03** | **9.19** | **3.08** | **45.89** | **779.55** | **524.93** | **2.40** | **0.86** | **0.83** | **415.52** | **90.19** | **74.00** | **14,119.77** | **155,444.49** | **163,808.45** | **458.99** | **282.43** | **272.04** | **129,156.81** | **28,038.99** | **23,088.00** |

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions
**Year: 2021**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 1.13 | 0.09 | 0.02 | 4.13E-03 | 2.59E-03 | 2.38E-03 | 1.05 | 0.27 | N/A | 45.13 | 3.44 | 0.73 | 0.17 | 0.10 | 0.10 | 42.01 | 10.79 | N/A | 5,415.42 | 413.31 | 87.67 | 19.80 | 12.44 | 11.43 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.01 | 0.00 | 0.00 | 1.23E-05 | 1.10E-05 | 1.01E-05 | 0.84 | 0.10 | N/A | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.37 | 0.39 | N/A | 3.32 | 0.29 | 0.06 | 0.01 | 0.01 | 0.00 | 404.90 | 46.47 | N/A |
| Yearly Construction Total | 30.48 | 3.47 | 0.80 | 1.14E-01 | 1.06E-01 | 1.06E-01 | 19.37 | 4.00 | N/A | 322.64 | 35.85 | 8.17 | 1.21 | 1.10 | 1.09 | 220.13 | 47.52 | N/A | 23,224.69 | 2,514.37 | 569.72 | 87.29 | 76.66 | 75.65 | 15,343.04 | 3,399.68 | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 31.63 | 4.37 | 0.81 | 0.12 | 0.10 | 0.10 | 17.25 | 3.59 | N/A | 9,869.40 | 1,362.46 | 251.43 | 37.21 | 32.54 | 32.54 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.73 | 56.66 | 0.07 | 1.59E-01 | 5.83E-02 | 5.57E-02 | 3.85 | 1.03 | N/A | 3.69 | 566.32 | 0.64 | 1.57 | 0.57 | 0.55 | 35.19 | 9.41 | N/A | 1,151.15 | 176,692.60 | 200.05 | 490.62 | 179.33 | 171.34 | 10,978.36 | 2,935.62 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.08 | 3.69 | 0.02 | 9.88E-03 | 5.79E-03 | 5.54E-03 | 45.80 | 9.65 | N/A | 0.78 | 36.90 | 0.19 | 0.10 | 0.06 | 0.06 | 457.97 | 96.51 | N/A | 242.50 | 11,511.85 | 59.25 | 30.83 | 18.08 | 17.28 | 142,887.08 | 30,112.03 | N/A |
| Yearly Operational Total | 7.18 | 61.14 | 0.25 | 1.91E-01 | 8.47E-02 | 8.18E-02 | 51.38 | 11.04 | N/A | 36.10 | 607.59 | 1.64 | 1.79 | 0.74 | 0.71 | 510.41 | 109.51 | N/A | 11,263.05 | 189,566.90 | 510.72 | 558.65 | 229.95 | 221.17 | 158,760.71 | 34,065.87 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **43.58** | **65.29** | **22.99** | **0.32** | **0.21** | **0.21** | **72.37** | **15.80** | **3.08** | **374.14** | **645.19** | **533.21** | **3.04** | **1.89** | **1.85** | **734.76** | **159.00** | **74.00** | **39,292.54** | **192,627.28** | **164,381.23** | **658.11** | **323.46** | **313.67** | **175,420.52** | **38,079.76** | **23,088.00** |

**Year: 2022**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 37.96 | 5.24 | 0.97 | 0.14 | 0.13 | 0.13 | 17.25 | 3.59 | N/A | 11,843.28 | 1,634.95 | 301.71 | 44.65 | 39.05 | 39.05 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.84 | 67.38 | 0.08 | 0.19 | 0.07 | 0.06 | 4.62 | 1.23 | N/A | 4.34 | 673.49 | 0.75 | 1.89 | 0.67 | 0.64 | 42.25 | 11.30 | N/A | 1,352.65 | 210,129.04 | 233.09 | 588.76 | 208.65 | 199.60 | 13,181.52 | 3,524.79 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.09 | 4.36 | 0.02 | 0.01 | 0.01 | 0.01 | 55.00 | 11.59 | N/A | 0.93 | 43.65 | 0.22 | 0.12 | 0.07 | 0.06 | 550.01 | 115.91 | N/A | 289.46 | 13,618.32 | 69.52 | 36.98 | 20.67 | 19.77 | 171,604.57 | 36,163.96 | N/A |
| Yearly Operational Total | 7.30 | 72.54 | 0.26 | 2.25E-01 | 9.50E-02 | 9.18E-02 | 61.35 | 13.18 | N/A | 43.22 | 722.38 | 1.94 | 2.15 | 0.86 | 0.83 | 609.51 | 130.80 | N/A | 13,485.39 | 225,382.31 | 604.32 | 670.39 | 268.37 | 258.42 | 189,681.38 | 40,706.96 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **13.22** | **73.21** | **22.21** | **0.24** | **0.12** | **0.11** | **62.97** | **13.94** | **3.08** | **58.62** | **724.13** | **525.34** | **2.19** | **0.91** | **0.88** | **613.73** | **132.76** | **74.00** | **18,290.19** | **225,928.31** | **163,905.12** | **682.55** | **285.22** | **275.27** | **190,998.14** | **41,321.17** | **23,088.00** |

**Year: 2023**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 0.00 | 0.00 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.91 | 76.88 | 0.08 | 0.22 | 0.07 | 0.07 | 5.39 | 1.44 | N/A | 4.67 | 768.46 | 0.69 | 2.20 | 0.70 | 0.67 | 49.31 | 13.19 | N/A | 1,457.94 | 239,760.65 | 215.24 | 686.43 | 218.85 | 209.35 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.88 | 0.02 | 0.01 | 0.01 | 0.01 | 64.21 | 13.53 | N/A | 1.03 | 48.75 | 0.23 | 0.14 | 0.06 | 0.06 | 642.06 | 135.31 | N/A | 321.08 | 15,210.15 | 70.99 | 43.09 | 20.24 | 19.36 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 7.38 | 82.55 | 0.26 | 2.58E-01 | 9.83E-02 | 9.49E-02 | 69.60 | 14.97 | N/A | 49.99 | 823.33 | 2.05 | 2.51 | 0.91 | 0.88 | 708.62 | 152.08 | N/A | 15,596.17 | 256,878.24 | 638.23 | 781.60 | 284.65 | 274.27 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **13.30** | **83.22** | **22.20** | **0.27** | **0.12** | **0.12** | **71.22** | **15.73** | **3.08** | **65.39** | **825.08** | **525.45** | **2.54** | **0.97** | **0.93** | **712.84** | **154.05** | **74.00** | **20,400.97** | **257,424.24** | **163,939.03** | **793.77** | **301.49** | **291.12** | **221,918.81** | **47,962.26** | **23,088.00** |

**Year: 2024**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 0.00 | 0.00 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.88 | 76.23 | 0.08 | 0.22 | 0.07 | 0.07 | 5.39 | 1.44 | N/A | 4.62 | 762.01 | 0.69 | 2.20 | 0.69 | 0.66 | 49.31 | 13.19 | N/A | 1,442.48 | 237,746.89 | 215.67 | 685.78 | 214.45 | 205.14 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.83 | 0.02 | 0.01 | 0.01 | 0.01 | 64.21 | 13.53 | N/A | 1.03 | 48.32 | 0.22 | 0.14 | 0.06 | 0.06 | 642.06 | 135.31 | N/A | 320.86 | 15,076.98 | 70.15 | 43.04 | 19.64 | 18.79 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 7.35 | 81.85 | 0.25 | 2.58E-01 | 9.67E-02 | 9.34E-02 | 69.60 | 14.97 | N/A | 49.94 | 816.45 | 2.04 | 2.50 | 0.90 | 0.86 | 708.62 | 152.08 | N/A | 15,580.49 | 254,731.32 | 637.81 | 780.91 | 279.65 | 269.49 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **13.27** | **82.53** | **22.20** | **0.27** | **0.12** | **0.11** | **71.22** | **15.73** | **3.08** | **65.34** | **818.20** | **525.44** | **2.54** | **0.95** | **0.92** | **712.84** | **154.05** | **74.00** | **20,385.29** | **255,277.32** | **163,938.61** | **793.08** | **296.50** | **286.34** | **221,918.81** | **47,962.26** | **23,088.00** |

**Chiquita Canyon Landfill EIR**

**Summary Construction and Operation Emissions**

Controlled Emissions

**Year: 2025**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.89 | 0.06 | 0.01 | 3.65E-03 | 2.54E-03 | 2.33E-03 | 1.05 | 0.27 | N/A | 35.72 | 2.51 | 0.51 | 0.15 | 0.10 | 0.09 | 42.01 | 10.79 | N/A | 4,286.68 | 301.34 | 61.53 | 17.50 | 12.17 | 11.19 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.00 | 0.00 | 0.00 | 1.08E-05 | 9.00E-06 | 8.27E-06 | 0.84 | 0.10 | N/A | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.37 | 0.39 | N/A | 2.32 | 0.20 | 0.04 | 0.01 | 0.00 | 0.00 | 404.90 | 46.47 | N/A |
| Yearly Construction Total | 30.25 | 3.45 | 0.79 | 1.13E-01 | 1.06E-01 | 1.06E-01 | 19.37 | 4.00 | N/A | 313.23 | 34.92 | 7.95 | 1.19 | 1.09 | 1.08 | 220.13 | 47.52 | N/A | 22,094.95 | 2,402.30 | 543.55 | 84.99 | 76.40 | 75.42 | 15,343.04 | 3,399.68 | N/A |
| Flares | 0.20 | 0.20 | 0.04 | 2.56E-01 | 1.98E-02 | 1.98E-02 | N/A | N/A | N/A | 4.68 | 4.68 | 0.94 | 6.14 | 0.47 | 0.47 | N/A | N/A | N/A | 1,708.95 | 1,708.95 | 344.27 | 2,241.45 | 173.37 | 173.37 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.85 | 75.67 | 0.07 | 2.21E-01 | 6.86E-02 | 6.56E-02 | 5.39 | 1.44 | N/A | 4.57 | 756.40 | 0.69 | 2.20 | 0.67 | 0.65 | 49.31 | 13.19 | N/A | 1,427.20 | 235,995.73 | 215.81 | 685.19 | 210.57 | 201.35 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.79 | 0.02 | 1.38E-02 | 6.12E-03 | 5.86E-03 | 64.21 | 13.53 | N/A | 0.53 | 8.04 | 0.12 | 0.00 | 0.02 | 0.02 | 642.06 | 135.31 | N/A | 320.46 | 14,958.17 | 69.36 | 42.99 | 19.10 | 18.27 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 7.52 | 81.45 | 0.29 | 5.13E-01 | 1.15E-01 | 1.12E-01 | 71.32 | 15.33 | N/A | 54.07 | 775.23 | 2.89 | 8.51 | 1.31 | 1.28 | 708.62 | 152.08 | N/A | 17,273.77 | 254,570.29 | 981.44 | 3,021.72 | 448.60 | 438.56 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **43.69** | **85.57** | **23.03** | **0.64** | **0.24** | **0.24** | **92.32** | **20.09** | **3.08** | **382.70** | **811.90** | **534.24** | **9.74** | **2.46** | **2.42** | **932.97** | **201.57** | **74.00** | **44,173.52** | **257,518.59** | **164,825.79** | **3,118.87** | **541.85** | **530.82** | **237,261.85** | **51,361.94** | **23,088.00** |

**Year: 2026**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 0.50 | 0.50 | 0.10 | 0.65 | 0.05 | 0.05 | N/A | N/A | N/A | 11.93 | 11.93 | 2.40 | 15.65 | 1.21 | 1.21 | N/A | N/A | N/A | 4,356.10 | 4,356.10 | 877.53 | 5,713.43 | 441.92 | 441.92 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.83 | 75.12 | 0.07 | 0.22 | 0.07 | 0.06 | 5.39 | 1.44 | N/A | 4.53 | 750.91 | 0.69 | 2.19 | 0.66 | 0.63 | 49.31 | 13.19 | N/A | 1,412.50 | 234,285.07 | 215.58 | 684.56 | 206.19 | 197.24 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.76 | 0.02 | 0.01 | 0.01 | 0.01 | 64.21 | 13.53 | N/A | 1.02 | 47.58 | 0.22 | 0.14 | 0.06 | 0.06 | 642.06 | 135.31 | N/A | 319.65 | 14,844.29 | 68.47 | 42.94 | 18.54 | 17.74 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 7.79 | 81.16 | 0.35 | 9.10E-01 | 1.44E-01 | 1.41E-01 | 71.32 | 15.33 | N/A | 61.77 | 816.54 | 4.44 | 18.15 | 2.08 | 2.05 | 708.62 | 152.08 | N/A | 19,905.40 | 255,392.89 | 1,513.58 | 6,493.03 | 712.22 | 702.47 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **13.72** | **81.84** | **22.30** | **0.92** | **0.16** | **0.16** | **72.95** | **16.08** | **3.08** | **77.17** | **818.29** | **527.84** | **18.19** | **2.13** | **2.10** | **712.84** | **154.05** | **74.00** | **24,710.20** | **255,938.89** | **164,814.38** | **6,505.19** | **729.07** | **719.32** | **221,918.81** | **47,962.26** | **23,088.00** |

**Year: 2027**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 0.80 | 0.80 | 0.16 | 1.04 | 0.08 | 0.08 | N/A | N/A | N/A | 19.08 | 19.08 | 3.84 | 25.03 | 1.94 | 1.94 | N/A | N/A | N/A | 6,965.29 | 6,965.29 | 1,403.15 | 9,135.64 | 706.62 | 706.62 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.80 | 74.73 | 0.07 | 0.22 | 0.07 | 0.06 | 5.39 | 1.44 | N/A | 4.48 | 747.06 | 0.69 | 2.19 | 0.65 | 0.62 | 49.31 | 13.19 | N/A | 1,397.28 | 233,082.73 | 214.74 | 684.06 | 202.91 | 194.11 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.73 | 0.02 | 0.01 | 0.01 | 0.01 | 64.21 | 13.53 | N/A | 1.02 | 47.28 | 0.22 | 0.14 | 0.06 | 0.06 | 642.06 | 135.31 | N/A | 318.77 | 14,752.70 | 67.81 | 42.90 | 18.12 | 17.34 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 8.07 | 81.05 | 0.41 | 1.30E+00 | 1.73E-01 | 1.70E-01 | 71.32 | 15.33 | N/A | 68.87 | 819.54 | 5.88 | 27.53 | 2.79 | 2.76 | 708.62 | 152.08 | N/A | 22,498.50 | 256,708.16 | 2,037.70 | 9,914.69 | 973.22 | 963.63 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **13.99** | **81.72** | **22.36** | **1.31** | **0.19** | **0.19** | **72.95** | **16.08** | **3.08** | **84.27** | **821.29** | **529.28** | **27.57** | **2.84** | **2.81** | **712.84** | **154.05** | **74.00** | **27,303.30** | **257,254.16** | **165,338.50** | **9,926.85** | **990.07** | **980.48** | **221,918.81** | **47,962.26** | **23,088.00** |

**Year: 2028**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 1.09 | 1.09 | 0.22 | 1.43E+00 | 1.10E-01 | 1.10E-01 | N/A | N/A | N/A | 26.10 | 26.10 | 5.26 | 34.23 | 2.65 | 2.65 | N/A | N/A | N/A | 9,527.05 | 9,527.05 | 1,919.22 | 12,495.62 | 966.51 | 966.51 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.78 | 74.39 | 0.07 | 2.21E-01 | 6.49E-02 | 6.21E-02 | 5.39 | 1.44 | N/A | 4.44 | 743.71 | 0.69 | 2.19 | 0.64 | 0.61 | 49.31 | 13.19 | N/A | 1,384.27 | 232,038.77 | 214.15 | 683.54 | 199.47 | 190.86 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.70 | 0.02 | 1.37E-02 | 5.68E-03 | 5.44E-03 | 64.21 | 13.53 | N/A | 1.02 | 47.04 | 0.22 | 0.14 | 0.06 | 0.05 | 642.06 | 135.31 | N/A | 318.14 | 14,676.37 | 67.22 | 42.86 | 17.72 | 16.96 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 8.34 | 80.98 | 0.47 | 1.68E+00 | 2.01E-01 | 1.98E-01 | 71.32 | 15.33 | N/A | 75.84 | 822.97 | 7.29 | 36.73 | 3.49 | 3.46 | 708.62 | 152.08 | N/A | 25,046.61 | 258,149.63 | 2,552.58 | 13,274.11 | 1,229.27 | 1,219.89 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | 9.12 | 0.82 | 0.19 | 0.02 | 0.03 | 0.03 | 0.56 | 0.31 | N/A | 72.95 | 6.53 | 1.51 | 0.12 | 0.20 | 0.20 | 4.52 | 2.48 | N/A | 8,889.35 | 782.38 | 180.54 | 14.76 | 24.07 | 24.07 | 891.30 | 468.64 | N/A |
| Off-Site Compost Facility Construction Sources | 0.40 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 | N/A | 3.19 | 0.25 | 0.17 | 0.01 | 0.01 | 0.01 | 0.27 | 0.07 | N/A | 413.90 | 32.88 | 22.10 | 1.30 | 0.77 | 0.72 | 103.55 | 27.47 | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 15.44 | 1.52 | 22.16 | 3.16E-02 | 4.66E-02 | 4.66E-02 | 2.22 | 1.08 | 3.08 | 91.54 | 8.53 | 525.08 | 0.17 | 0.26 | 0.26 | 9.01 | 4.52 | 74.00 | 14,108.06 | 1,361.26 | 163,503.44 | 28.23 | 41.69 | 41.64 | 2,311.62 | 1,110.32 | 23,088.00 |
| **Yearly Total** | **23.78** | **82.50** | **22.63** | **1.71** | **0.25** | **0.24** | **73.55** | **16.40** | **3.08** | **167.38** | **831.50** | **532.36** | **36.90** | **3.75** | **3.72** | **717.63** | **156.60** | **74.00** | **39,154.66** | **259,510.89** | **166,056.02** | **13,302.34** | **1,270.96** | **1,261.53** | **222,913.66** | **48,458.37** | **23,088.00** |

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions
**Year: 2029**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.74 | 0.05 | 0.01 | 3.30E-03 | 2.07E-03 | 1.90E-03 | 1.05 | 0.27 | N/A | 29.66 | 1.97 | 0.39 | 0.13 | 0.08 | 0.08 | 42.01 | 10.79 | N/A | 3,559.13 | 236.43 | 46.56 | 15.83 | 9.93 | 9.13 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.00 | 0.00 | 0.00 | 9.60E-06 | 6.98E-06 | 6.42E-06 | 0.84 | 0.10 | N/A | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.37 | 0.39 | N/A | 1.68 | 0.14 | 0.03 | 0.00 | 0.00 | 0.00 | 404.90 | 46.47 | N/A |
| Yearly Construction Total | 30.09 | 3.43 | 0.79 | 1.13E-01 | 1.06E-01 | 1.05E-01 | 19.37 | 4.00 | N/A | 307.16 | 34.38 | 7.83 | 1.18 | 1.07 | 1.07 | 220.13 | 47.52 | N/A | 21,366.76 | 2,337.33 | 528.57 | 83.32 | 74.15 | 73.36 | 15,343.04 | 3,399.68 | N/A |
| Flares | 1.37 | 1.37 | 0.28 | 1.80E+00 | 1.39E-01 | 1.39E-01 | N/A | N/A | N/A | 32.99 | 32.99 | 6.65 | 43.27 | 3.35 | 3.35 | N/A | N/A | N/A | 12,041.36 | 12,041.36 | 2,425.72 | 15,793.38 | 1,221.59 | 1,221.59 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.77 | 73.87 | 0.07 | 2.20E-01 | 6.30E-02 | 6.03E-02 | 5.39 | 1.44 | N/A | 4.39 | 738.51 | 0.68 | 2.19 | 0.62 | 0.59 | 49.31 | 13.19 | N/A | 1,369.65 | 230,415.31 | 213.63 | 682.82 | 193.87 | 185.45 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.67 | 0.02 | 1.37E-02 | 5.49E-03 | 5.25E-03 | 64.21 | 13.53 | N/A | 1.02 | 46.74 | 0.21 | 0.14 | 0.05 | 0.05 | 642.06 | 135.31 | N/A | 316.83 | 14,581.97 | 66.20 | 42.81 | 17.13 | 16.39 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 8.61 | 80.71 | 0.53 | 2.06E+00 | 2.29E-01 | 2.26E-01 | 71.32 | 15.33 | N/A | 82.68 | 824.35 | 8.67 | 45.76 | 4.17 | 4.14 | 708.62 | 152.08 | N/A | 27,544.99 | 258,946.08 | 3,057.55 | 16,571.09 | 1,478.15 | 1,468.99 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **44.63** | **84.82** | **23.26** | **2.19** | **0.35** | **0.35** | **92.32** | **20.09** | **3.08** | **405.24** | **860.48** | **539.90** | **46.98** | **5.30** | **5.26** | **932.97** | **201.57** | **74.00** | **53,716.55** | **261,829.42** | **166,886.92** | **16,666.58** | **1,569.15** | **1,559.20** | **237,261.85** | **51,361.94** | **23,088.00** |

**Year: 2030**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 1.66 | 1.66 | 0.33 | 2.17 | 0.17 | 0.17 | N/A | N/A | N/A | 39.75 | 39.75 | 8.01 | 52.13 | 4.03 | 4.03 | N/A | N/A | N/A | 14,508.23 | 14,508.23 | 2,922.67 | 19,028.92 | 1,471.85 | 1,471.85 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.75 | 73.50 | 0.07 | 0.22 | 0.06 | 0.06 | 5.39 | 1.44 | N/A | 4.34 | 734.81 | 0.68 | 2.19 | 0.61 | 0.58 | 49.31 | 13.19 | N/A | 1,355.33 | 229,260.29 | 212.77 | 682.16 | 189.08 | 180.87 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.65 | 0.02 | 0.01 | 0.01 | 0.01 | 64.21 | 13.53 | N/A | 1.01 | 46.50 | 0.21 | 0.14 | 0.05 | 0.05 | 642.06 | 135.31 | N/A | 315.75 | 14,508.32 | 65.49 | 42.77 | 16.67 | 15.95 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 8.87 | 80.60 | 0.58 | 2.43E+00 | 2.55E-01 | 2.52E-01 | 71.32 | 15.33 | N/A | 89.39 | 827.17 | 10.03 | 54.62 | 4.84 | 4.81 | 708.62 | 152.08 | N/A | 29,996.47 | 260,184.29 | 3,552.93 | 19,805.92 | 1,723.16 | 1,714.24 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **14.80** | **81.27** | **22.53** | **2.44** | **0.28** | **0.27** | **72.95** | **16.08** | **3.08** | **104.79** | **828.92** | **533.43** | **54.66** | **4.89** | **4.86** | **712.84** | **154.05** | **74.00** | **34,801.27** | **260,730.29** | **166,853.73** | **19,818.09** | **1,740.01** | **1,731.08** | **221,918.81** | **47,962.26** | **23,088.00** |

**Year: 2031**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 1.93 | 1.93 | 0.39 | 2.53 | 0.20 | 0.20 | N/A | N/A | N/A | 46.38 | 46.38 | 9.34 | 60.83 | 4.70 | 4.70 | N/A | N/A | N/A | 16,927.67 | 16,927.67 | 3,410.07 | 22,202.23 | 1,717.30 | 1,717.30 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.73 | 73.11 | 0.07 | 0.22 | 0.06 | 0.06 | 5.39 | 1.44 | N/A | 4.30 | 730.90 | 0.68 | 2.18 | 0.59 | 0.56 | 49.31 | 13.19 | N/A | 1,340.75 | 228,042.36 | 211.81 | 681.43 | 183.71 | 175.74 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.63 | 0.02 | 0.01 | 0.01 | 0.00 | 64.21 | 13.53 | N/A | 1.01 | 46.26 | 0.21 | 0.14 | 0.05 | 0.05 | 642.06 | 135.31 | N/A | 314.61 | 14,433.28 | 64.83 | 42.72 | 16.20 | 15.50 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 9.13 | 80.46 | 0.64 | 2.79E+00 | 2.81E-01 | 2.79E-01 | 71.32 | 15.33 | N/A | 95.97 | 829.66 | 11.36 | 63.32 | 5.49 | 5.46 | 708.62 | 152.08 | N/A | 32,400.18 | 261,310.74 | 4,038.71 | 22,978.47 | 1,962.78 | 1,954.10 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **15.05** | **81.13** | **22.58** | **2.81** | **0.30** | **0.30** | **72.95** | **16.08** | **3.08** | **111.37** | **831.41** | **534.76** | **63.35** | **5.55** | **5.52** | **712.84** | **154.05** | **74.00** | **37,204.98** | **261,856.74** | **167,339.51** | **22,990.63** | **1,979.62** | **1,970.95** | **221,918.81** | **47,962.26** | **23,088.00** |

**Year: 2032**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 2.20 | 2.20 | 0.44 | 2.89 | 0.22 | 0.22 | N/A | N/A | N/A | 52.88 | 52.88 | 10.65 | 69.35 | 5.36 | 5.36 | N/A | N/A | N/A | 19,299.66 | 19,299.66 | 3,887.90 | 25,313.33 | 1,957.94 | 1,957.94 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.71 | 72.63 | 0.07 | 0.22 | 0.06 | 0.06 | 5.39 | 1.44 | N/A | 4.25 | 726.12 | 0.68 | 2.18 | 0.57 | 0.54 | 49.31 | 13.19 | N/A | 1,325.57 | 226,550.42 | 210.87 | 680.56 | 177.36 | 169.67 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.60 | 0.02 | 0.01 | 0.01 | 0.00 | 64.21 | 13.53 | N/A | 1.00 | 45.98 | 0.21 | 0.14 | 0.05 | 0.05 | 642.06 | 135.31 | N/A | 313.40 | 14,345.53 | 64.27 | 42.66 | 15.73 | 15.05 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 9.39 | 80.22 | 0.69 | 3.15E+00 | 3.07E-01 | 3.04E-01 | 71.32 | 15.33 | N/A | 102.41 | 831.09 | 12.66 | 71.84 | 6.13 | 6.10 | 708.62 | 152.08 | N/A | 34,755.79 | 262,103.06 | 4,515.03 | 26,088.64 | 2,196.59 | 2,188.22 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **15.31** | **80.90** | **22.64** | **3.16** | **0.33** | **0.32** | **72.95** | **16.08** | **3.08** | **117.81** | **832.84** | **536.06** | **71.88** | **6.18** | **6.16** | **712.84** | **154.05** | **74.00** | **39,560.59** | **262,649.06** | **167,815.83** | **26,100.81** | **2,213.44** | **2,205.06** | **221,918.81** | **47,962.26** | **23,088.00** |

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions

**Year: 2033**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.63 | 0.04 | 0.01 | 3.08E-03 | 1.63E-03 | 1.50E-03 | 1.05 | 0.27 | N/A | 25.26 | 1.60 | 0.30 | 0.12 | 0.07 | 0.06 | 42.01 | 10.79 | N/A | 3,031.77 | 191.65 | 35.95 | 14.80 | 7.84 | 7.21 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.00 | 0.00 | 0.00 | 8.79E-06 | 4.97E-06 | 4.57E-06 | 0.84 | 0.10 | N/A | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.37 | 0.39 | N/A | 1.14 | 0.08 | 0.02 | 0.00 | 0.00 | 0.00 | 404.90 | 46.47 | N/A |
| Yearly Construction Total | 29.98 | 3.42 | 0.78 | 1.13E-01 | 1.05E-01 | 1.05E-01 | 19.37 | 4.00 | N/A | 302.76 | 34.01 | 7.74 | 1.17 | 1.06 | 1.05 | 220.13 | 47.52 | N/A | 20,838.86 | 2,292.50 | 517.95 | 82.29 | 72.06 | 71.44 | 15,343.04 | 3,399.68 | N/A |
| Flares | 2.47 | 2.47 | 0.50 | 3.24E+00 | 2.50E-01 | 2.50E-01 | N/A | N/A | N/A | 59.24 | 59.24 | 11.93 | 77.70 | 6.01 | 6.01 | N/A | N/A | N/A | 21,624.22 | 21,624.22 | 4,356.18 | 28,362.20 | 2,193.76 | 2,193.76 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.70 | 72.14 | 0.07 | 2.19E-01 | 5.55E-02 | 5.31E-02 | 5.39 | 1.44 | N/A | 4.20 | 721.23 | 0.67 | 2.18 | 0.55 | 0.52 | 49.31 | 13.19 | N/A | 1,310.89 | 225,022.84 | 209.96 | 679.66 | 171.06 | 163.64 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.57 | 0.02 | 1.37E-02 | 4.89E-03 | 4.68E-03 | 64.21 | 13.53 | N/A | 1.00 | 45.70 | 0.20 | 0.14 | 0.05 | 0.05 | 642.06 | 135.31 | N/A | 312.14 | 14,259.01 | 63.67 | 42.61 | 15.26 | 14.60 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 9.64 | 79.97 | 0.75 | 3.49E+00 | 3.31E-01 | 3.29E-01 | 71.32 | 15.33 | N/A | 108.73 | 832.29 | 13.94 | 80.19 | 6.75 | 6.73 | 708.62 | 152.08 | N/A | 37,064.41 | 262,813.51 | 4,981.82 | 29,136.55 | 2,425.64 | 2,417.56 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **45.54** | **84.07** | **23.48** | **3.62** | **0.46** | **0.45** | **92.32** | **20.09** | **3.08** | **426.90** | **868.04** | **545.08** | **81.40** | **7.86** | **7.83** | **932.97** | **201.57** | **74.00** | **62,708.07** | **265,652.02** | **168,800.57** | **29,231.01** | **2,514.55** | **2,505.84** | **237,261.85** | **51,361.94** | **23,088.00** |

**Year: 2034**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 2.73 | 2.73 | 0.55 | 3.58 | 0.28 | 0.28 | N/A | N/A | N/A | 65.48 | 65.48 | 13.19 | 85.89 | 6.64 | 6.64 | N/A | N/A | N/A | 23,901.33 | 23,901.33 | 4,814.91 | 31,348.85 | 2,424.77 | 2,424.77 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.68 | 71.35 | 0.07 | 0.22 | 0.05 | 0.05 | 5.39 | 1.44 | N/A | 4.15 | 713.38 | 0.67 | 2.17 | 0.52 | 0.50 | 49.31 | 13.19 | N/A | 1,294.37 | 222,574.47 | 209.29 | 678.42 | 162.57 | 155.52 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.53 | 0.02 | 0.01 | 0.00 | 0.00 | 64.21 | 13.53 | N/A | 0.99 | 45.30 | 0.20 | 0.14 | 0.05 | 0.04 | 642.06 | 135.31 | N/A | 310.31 | 14,132.90 | 62.81 | 42.54 | 14.62 | 13.99 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 9.88 | 79.41 | 0.80 | 3.83E+00 | 3.55E-01 | 3.52E-01 | 71.32 | 15.33 | N/A | 114.91 | 830.27 | 15.19 | 88.36 | 7.36 | 7.33 | 708.62 | 152.08 | N/A | 39,323.17 | 262,516.15 | 5,439.00 | 32,121.90 | 2,647.53 | 2,639.84 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **15.80** | **80.08** | **22.74** | **3.85** | **0.38** | **0.37** | **72.95** | **16.08** | **3.08** | **130.31** | **832.02** | **538.59** | **88.40** | **7.41** | **7.39** | **712.84** | **154.05** | **74.00** | **44,127.97** | **263,062.15** | **168,739.80** | **32,134.07** | **2,664.38** | **2,656.69** | **221,918.81** | **47,962.26** | **23,088.00** |

**Year: 2035**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 2.98 | 2.98 | 0.60 | 3.91 | 0.30 | 0.30 | N/A | N/A | N/A | 71.59 | 71.59 | 14.42 | 93.90 | 7.26 | 7.26 | N/A | N/A | N/A | 26,131.01 | 26,131.01 | 5,264.07 | 34,273.28 | 2,650.97 | 2,650.97 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.67 | 70.83 | 0.07 | 0.22 | 0.05 | 0.05 | 5.39 | 1.44 | N/A | 4.10 | 708.17 | 0.67 | 2.17 | 0.51 | 0.48 | 49.31 | 13.19 | N/A | 1,279.56 | 220,949.58 | 208.36 | 677.57 | 157.72 | 150.88 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.50 | 0.02 | 0.01 | 0.00 | 0.00 | 64.21 | 13.53 | N/A | 0.99 | 45.02 | 0.20 | 0.14 | 0.05 | 0.04 | 642.06 | 135.31 | N/A | 308.81 | 14,046.39 | 62.14 | 42.49 | 14.23 | 13.61 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 10.12 | 79.11 | 0.85 | 4.17E+00 | 3.79E-01 | 3.77E-01 | 71.32 | 15.33 | N/A | 120.97 | 830.90 | 16.42 | 96.37 | 7.96 | 7.94 | 708.62 | 152.08 | N/A | 41,536.53 | 263,034.42 | 5,886.57 | 35,045.43 | 2,868.48 | 2,861.03 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.04** | **79.78** | **22.79** | **4.18** | **0.40** | **0.40** | **72.95** | **16.08** | **3.08** | **136.37** | **832.65** | **539.82** | **96.41** | **8.01** | **7.99** | **712.84** | **154.05** | **74.00** | **46,341.33** | **263,580.42** | **169,187.37** | **35,057.60** | **2,885.33** | **2,877.87** | **221,918.81** | **47,962.26** | **23,088.00** |

**Year: 2036**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.23 | 3.23 | 0.65 | 4.24 | 0.33 | 0.33 | N/A | N/A | N/A | 77.57 | 77.57 | 15.63 | 101.74 | 7.87 | 7.87 | N/A | N/A | N/A | 28,313.24 | 28,313.24 | 5,703.68 | 37,135.48 | 2,872.36 | 2,872.36 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.65 | 70.42 | 0.07 | 0.22 | 0.05 | 0.05 | 5.39 | 1.44 | N/A | 4.06 | 704.02 | 0.67 | 2.17 | 0.50 | 0.48 | 49.31 | 13.19 | N/A | 1,267.63 | 219,652.98 | 207.60 | 677.04 | 156.91 | 150.10 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.48 | 0.02 | 0.01 | 0.00 | 0.00 | 64.21 | 13.53 | N/A | 0.99 | 44.79 | 0.20 | 0.14 | 0.05 | 0.04 | 642.06 | 135.31 | N/A | 307.56 | 13,975.73 | 61.62 | 42.47 | 14.07 | 13.46 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 10.35 | 78.92 | 0.90 | 4.49E+00 | 4.04E-01 | 4.01E-01 | 71.32 | 15.33 | N/A | 126.90 | 832.49 | 17.62 | 104.21 | 8.56 | 8.54 | 708.62 | 152.08 | N/A | 43,705.59 | 263,849.40 | 6,324.90 | 37,907.08 | 3,088.90 | 3,081.48 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.28** | **79.59** | **22.84** | **4.51** | **0.42** | **0.42** | **72.95** | **16.08** | **3.08** | **142.30** | **834.24** | **541.02** | **104.25** | **8.62** | **8.59** | **712.84** | **154.05** | **74.00** | **48,510.39** | **264,395.40** | **169,625.70** | **37,919.25** | **3,105.75** | **3,098.33** | **221,918.81** | **47,962.26** | **23,088.00** |

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions
**Year: 2037**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.55 | 0.03 | 0.01 | 2.96E-03 | 1.30E-03 | 1.20E-03 | 1.05 | 0.27 | N/A | 21.88 | 1.37 | 0.24 | 0.12 | 0.05 | 0.05 | 42.01 | 10.79 | N/A | 2,626.00 | 164.51 | 28.55 | 14.21 | 6.26 | 5.75 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.00 | 0.00 | 0.00 | 8.27E-06 | 3.76E-06 | 3.46E-06 | 0.84 | 0.10 | N/A | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.37 | 0.39 | N/A | 0.84 | 0.06 | 0.01 | 0.00 | 0.00 | 0.00 | 404.90 | 46.47 | N/A |
| Yearly Construction Total | 29.90 | 3.42 | 0.78 | 1.13E-01 | 1.05E-01 | 1.05E-01 | 19.37 | 4.00 | N/A | 299.38 | 33.78 | 7.68 | 1.17 | 1.04 | 1.04 | 220.13 | 47.52 | N/A | 20,432.79 | 2,265.34 | 510.55 | 81.70 | 70.48 | 69.97 | 15,343.04 | 3,399.68 | N/A |
| Flares | 3.48 | 3.48 | 0.70 | 4.56E+00 | 3.53E-01 | 3.53E-01 | N/A | N/A | N/A | 83.42 | 83.42 | 16.80 | 109.41 | 8.46 | 8.46 | N/A | N/A | N/A | 30,448.04 | 30,448.04 | 6,133.74 | 39,935.47 | 3,088.93 | 3,088.93 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.64 | 70.04 | 0.07 | 2.18E-01 | 5.09E-02 | 4.87E-02 | 5.39 | 1.44 | N/A | 4.03 | 700.28 | 0.66 | 2.17 | 0.50 | 0.48 | 49.31 | 13.19 | N/A | 1,257.11 | 218,487.78 | 207.04 | 676.77 | 156.97 | 150.17 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.46 | 0.02 | 1.36E-02 | 4.47E-03 | 4.28E-03 | 64.21 | 13.53 | N/A | 0.98 | 44.59 | 0.20 | 0.14 | 0.04 | 0.04 | 642.06 | 135.31 | N/A | 306.24 | 13,913.45 | 61.07 | 42.45 | 13.96 | 13.35 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 10.59 | 78.77 | 0.95 | 4.81E+00 | 4.29E-01 | 4.26E-01 | 71.32 | 15.33 | N/A | 132.72 | 834.41 | 18.79 | 111.88 | 9.16 | 9.13 | 708.62 | 152.08 | N/A | 45,828.54 | 264,756.71 | 6,753.84 | 40,706.77 | 3,305.42 | 3,298.01 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **46.41** | **82.86** | **23.67** | **4.94** | **0.55** | **0.55** | **92.32** | **20.09** | **3.08** | **447.49** | **869.94** | **549.87** | **113.09** | **10.25** | **10.23** | **932.97** | **201.57** | **74.00** | **71,066.13** | **267,568.05** | **170,565.19** | **40,800.64** | **3,392.75** | **3,384.83** | **237,261.85** | **51,361.94** | **23,088.00** |

**Year: 2038**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.71 | 3.71 | 0.75 | 4.87E+00 | 3.77E-01 | 3.77E-01 | N/A | N/A | N/A | 89.14 | 89.14 | 17.96 | 116.91 | 9.04 | 9.04 | N/A | N/A | N/A | 32,535.39 | 32,535.39 | 6,554.23 | 42,673.23 | 3,300.69 | 3,300.69 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.63 | 69.56 | 0.07 | 2.18E-01 | 5.13E-02 | 4.90E-02 | 5.39 | 1.44 | N/A | 4.00 | 695.50 | 0.66 | 2.17 | 0.51 | 0.49 | 49.31 | 13.19 | N/A | 1,249.09 | 216,994.87 | 207.21 | 676.77 | 158.23 | 151.35 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.44 | 0.02 | 1.36E-02 | 4.45E-03 | 4.25E-03 | 64.21 | 13.53 | N/A | 0.98 | 44.35 | 0.19 | 0.14 | 0.04 | 0.04 | 642.06 | 135.31 | N/A | 304.82 | 13,838.70 | 60.44 | 42.44 | 13.87 | 13.27 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 10.82 | 78.51 | 0.99 | 5.13E+00 | 4.53E-01 | 4.51E-01 | 71.32 | 15.33 | N/A | 138.40 | 835.10 | 19.94 | 119.39 | 9.74 | 9.72 | 708.62 | 152.08 | N/A | 47,906.46 | 265,276.40 | 7,173.88 | 43,444.54 | 3,518.35 | 3,510.88 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | 9.12 | 0.82 | 0.19 | 0.02 | 0.03 | 0.03 | 0.56 | 0.31 | N/A | 72.95 | 6.53 | 1.51 | 0.12 | 0.20 | 0.20 | 4.52 | 2.48 | N/A | 8,889.35 | 782.38 | 180.54 | 14.76 | 24.07 | 24.07 | 891.30 | 468.64 | N/A |
| Off-Site Compost Facility Construction Sources | 0.40 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 | N/A | 3.19 | 0.25 | 0.17 | 0.01 | 0.01 | 0.01 | 0.27 | 0.07 | N/A | 413.90 | 32.88 | 22.10 | 1.30 | 0.77 | 0.72 | 103.55 | 27.47 | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 15.44 | 1.52 | 22.16 | 3.16E-02 | 4.66E-02 | 4.66E-02 | 2.22 | 1.08 | 3.08 | 91.54 | 8.53 | 525.08 | 0.17 | 0.26 | 0.26 | 9.01 | 4.52 | 74.00 | 14,108.06 | 1,361.26 | 163,503.44 | 28.23 | 41.69 | 41.64 | 2,311.62 | 1,110.32 | 23,088.00 |
| **Yearly Total** | **26.26** | **80.03** | **23.15** | **5.16** | **0.50** | **0.50** | **73.55** | **16.40** | **3.08** | **229.94** | **843.63** | **545.02** | **119.56** | **10.00** | **9.98** | **717.63** | **156.60** | **74.00** | **62,014.51** | **266,637.66** | **170,677.32** | **43,472.77** | **3,560.05** | **3,552.52** | **222,913.66** | **48,458.37** | **23,088.00** |

**Year: 2039**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.95 | 3.95 | 0.80 | 5.18 | 0.40 | 0.40 | N/A | N/A | N/A | 94.73 | 94.73 | 19.08 | 124.24 | 9.61 | 9.61 | N/A | N/A | N/A | 34,575.31 | 34,575.31 | 6,965.17 | 45,348.77 | 3,507.64 | 3,507.64 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.63 | 69.22 | 0.07 | 0.22 | 0.05 | 0.05 | 5.39 | 1.44 | N/A | 3.99 | 692.04 | 0.67 | 2.17 | 0.52 | 0.50 | 49.31 | 13.19 | N/A | 1,245.50 | 215,916.82 | 208.11 | 677.88 | 162.23 | 155.19 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.42 | 0.02 | 0.01 | 0.00 | 0.00 | 64.21 | 13.53 | N/A | 0.97 | 44.18 | 0.19 | 0.14 | 0.04 | 0.04 | 642.06 | 135.31 | N/A | 303.68 | 13,784.85 | 59.91 | 42.50 | 13.94 | 13.34 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 11.04 | 78.38 | 1.04 | 5.43E+00 | 4.78E-01 | 4.75E-01 | 71.32 | 15.33 | N/A | 143.98 | 837.06 | 21.07 | 126.72 | 10.32 | 10.30 | 708.62 | 152.08 | N/A | 49,941.64 | 266,184.42 | 7,585.19 | 46,121.24 | 3,729.37 | 3,721.73 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.96** | **79.05** | **22.99** | **5.45** | **0.50** | **0.50** | **72.95** | **16.08** | **3.08** | **159.38** | **838.81** | **544.47** | **126.76** | **10.37** | **10.35** | **712.84** | **154.05** | **74.00** | **54,746.44** | **266,730.42** | **170,885.99** | **46,133.41** | **3,746.22** | **3,738.58** | **221,918.81** | **47,962.26** | **23,088.00** |

**Year: 2040**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.92 | 3.92 | 0.79 | 5.14 | 0.40 | 0.40 | N/A | N/A | N/A | 94.08 | 94.08 | 18.95 | 123.39 | 9.54 | 9.54 | N/A | N/A | N/A | 34,338.11 | 34,338.11 | 6,917.39 | 45,037.66 | 3,483.58 | 3,483.58 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.62 | 68.61 | 0.07 | 0.22 | 0.05 | 0.05 | 5.39 | 1.44 | N/A | 3.99 | 685.99 | 0.67 | 2.18 | 0.54 | 0.51 | 49.31 | 13.19 | N/A | 1,244.55 | 214,029.67 | 209.90 | 679.22 | 167.92 | 160.64 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.39 | 0.02 | 0.01 | 0.00 | 0.00 | 64.21 | 13.53 | N/A | 0.97 | 43.89 | 0.19 | 0.14 | 0.05 | 0.04 | 642.06 | 135.31 | N/A | 302.48 | 13,692.38 | 59.32 | 42.57 | 14.07 | 13.46 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 11.01 | 77.71 | 1.04 | 5.40E+00 | 4.77E-01 | 4.75E-01 | 71.32 | 15.33 | N/A | 143.32 | 830.07 | 20.94 | 125.87 | 10.27 | 10.25 | 708.62 | 152.08 | N/A | 49,702.29 | 263,967.60 | 7,538.61 | 45,811.54 | 3,711.12 | 3,703.24 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.93** | **78.39** | **22.98** | **5.41** | **0.50** | **0.50** | **72.95** | **16.08** | **3.08** | **158.72** | **831.82** | **544.34** | **125.91** | **10.33** | **10.30** | **712.84** | **154.05** | **74.00** | **54,507.09** | **264,513.60** | **170,839.41** | **45,823.71** | **3,727.97** | **3,720.08** | **221,918.81** | **47,962.26** | **23,088.00** |

**Chiquita Canyon Landfill EIR**

**Summary Construction and Operation Emissions**

Controlled Emissions

**Year: 2041**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.51 | 0.03 | 0.01 | 2.90E-03 | 1.10E-03 | 1.01E-03 | 1.05 | 0.27 | N/A | 20.21 | 1.27 | 0.21 | 0.12 | 0.04 | 0.04 | 42.01 | 10.79 | N/A | 2,425.76 | 152.72 | 25.52 | 13.93 | 5.27 | 4.83 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.00 | 0.00 | 0.00 | 7.97E-06 | 3.09E-06 | 2.84E-06 | 0.84 | 0.10 | N/A | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.37 | 0.39 | N/A | 0.73 | 0.05 | 0.01 | 0.00 | 0.00 | 0.00 | 404.90 | 46.47 | N/A |
| Yearly Construction Total | 29.86 | 3.42 | 0.78 | 1.13E-01 | 1.05E-01 | 1.05E-01 | 19.37 | 4.00 | N/A | 297.71 | 33.68 | 7.65 | 1.16 | 1.04 | 1.03 | 220.13 | 47.52 | N/A | 20,232.44 | 2,253.54 | 507.51 | 81.42 | 69.49 | 69.06 | 15,343.04 | 3,399.68 | N/A |
| Flares | 3.74 | 3.74 | 0.75 | 4.91E+00 | 3.80E-01 | 3.80E-01 | N/A | N/A | N/A | 89.79 | 89.79 | 18.09 | 117.77 | 9.11 | 9.11 | N/A | N/A | N/A | 32,772.59 | 32,772.59 | 6,602.01 | 42,984.34 | 3,324.76 | 3,324.76 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.62 | 67.72 | 0.07 | 2.19E-01 | 5.65E-02 | 5.40E-02 | 5.39 | 1.44 | N/A | 3.99 | 677.09 | 0.68 | 2.18 | 0.56 | 0.54 | 49.31 | 13.19 | N/A | 1,245.74 | 211,250.76 | 212.35 | 680.46 | 174.67 | 167.11 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.34 | 0.02 | 1.37E-02 | 4.57E-03 | 4.37E-03 | 64.21 | 13.53 | N/A | 0.97 | 43.44 | 0.19 | 0.14 | 0.05 | 0.04 | 642.06 | 135.31 | N/A | 301.42 | 13,554.61 | 58.80 | 42.63 | 14.25 | 13.63 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 10.83 | 76.60 | 1.00 | 5.16E+00 | 4.61E-01 | 4.58E-01 | 71.32 | 15.33 | N/A | 139.03 | 816.43 | 20.08 | 120.25 | 9.86 | 9.83 | 708.62 | 152.08 | N/A | 48,136.91 | 259,485.41 | 7,225.16 | 43,759.52 | 3,559.24 | 3,551.06 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **46.61** | **80.69** | **23.73** | **5.29** | **0.59** | **0.58** | **92.32** | **20.09** | **3.08** | **452.14** | **851.86** | **551.14** | **121.45** | **10.95** | **10.92** | **932.97** | **201.57** | **74.00** | **73,174.14** | **262,284.94** | **171,033.48** | **43,853.11** | **3,645.57** | **3,636.96** | **237,261.85** | **51,361.94** | **23,088.00** |

**Year: 2042**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.57 | 3.57 | 0.72 | 4.68 | 0.36 | 0.36 | N/A | N/A | N/A | 85.63 | 85.63 | 17.25 | 112.31 | 8.69 | 8.69 | N/A | N/A | N/A | 31,254.52 | 31,254.52 | 6,296.20 | 40,993.24 | 3,170.75 | 3,170.75 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.62 | 66.50 | 0.07 | 0.22 | 0.06 | 0.06 | 5.39 | 1.44 | N/A | 4.00 | 664.89 | 0.69 | 2.18 | 0.58 | 0.55 | 49.31 | 13.19 | N/A | 1,247.80 | 207,444.43 | 214.76 | 680.87 | 180.86 | 173.02 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.28 | 0.02 | 0.01 | 0.00 | 0.00 | 64.21 | 13.53 | N/A | 0.96 | 42.82 | 0.19 | 0.14 | 0.05 | 0.04 | 642.06 | 135.31 | N/A | 300.92 | 13,359.94 | 58.58 | 42.65 | 14.46 | 13.83 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 10.65 | 75.14 | 0.97 | 4.94E+00 | 4.46E-01 | 4.43E-01 | 71.32 | 15.33 | N/A | 134.88 | 799.45 | 19.25 | 114.80 | 9.46 | 9.43 | 708.62 | 152.08 | N/A | 46,620.39 | 253,966.33 | 6,921.53 | 41,768.85 | 3,411.63 | 3,403.16 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.58** | **75.82** | **22.91** | **4.95** | **0.47** | **0.46** | **72.95** | **16.08** | **3.08** | **150.28** | **801.20** | **542.65** | **114.84** | **9.51** | **9.49** | **712.84** | **154.05** | **74.00** | **51,425.19** | **254,512.33** | **170,222.33** | **41,781.02** | **3,428.47** | **3,420.01** | **221,918.81** | **47,962.26** | **23,088.00** |

**Year: 2043**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.39 | 3.39 | 0.68 | 4.45 | 0.34 | 0.34 | N/A | N/A | N/A | 81.47 | 81.47 | 16.41 | 106.86 | 8.27 | 8.27 | N/A | N/A | N/A | 29,736.44 | 29,736.44 | 5,990.38 | 39,002.14 | 3,016.74 | 3,016.74 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.62 | 64.55 | 0.07 | 0.22 | 0.06 | 0.06 | 5.39 | 1.44 | N/A | 4.02 | 645.37 | 0.70 | 2.18 | 0.61 | 0.58 | 49.31 | 13.19 | N/A | 1,254.07 | 201,354.13 | 218.74 | 680.84 | 189.17 | 180.98 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 4.18 | 0.02 | 0.01 | 0.00 | 0.00 | 64.21 | 13.53 | N/A | 0.96 | 41.81 | 0.19 | 0.14 | 0.05 | 0.05 | 642.06 | 135.31 | N/A | 300.90 | 13,045.80 | 58.61 | 42.65 | 14.79 | 14.15 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 10.48 | 72.92 | 0.93 | 4.71E+00 | 4.31E-01 | 4.28E-01 | 71.32 | 15.33 | N/A | 130.74 | 774.76 | 18.43 | 109.34 | 9.06 | 9.04 | 708.62 | 152.08 | N/A | 45,108.56 | 246,043.80 | 6,619.73 | 39,777.71 | 3,266.27 | 3,257.43 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.40** | **73.59** | **22.88** | **4.72** | **0.45** | **0.45** | **72.95** | **16.08** | **3.08** | **146.14** | **776.51** | **541.83** | **109.38** | **9.12** | **9.09** | **712.84** | **154.05** | **74.00** | **49,913.36** | **246,589.80** | **169,920.53** | **39,789.88** | **3,283.12** | **3,274.28** | **221,918.81** | **47,962.26** | **23,088.00** |

**Year: 2044**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.23 | 3.23 | 0.65 | 4.23 | 0.33 | 0.33 | N/A | N/A | N/A | 77.44 | 77.44 | 15.60 | 101.57 | 7.86 | 7.86 | N/A | N/A | N/A | 28,265.80 | 28,265.80 | 5,694.13 | 37,073.26 | 2,867.55 | 2,867.55 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.62 | 60.74 | 0.07 | 0.22 | 0.07 | 0.06 | 5.39 | 1.44 | N/A | 4.07 | 607.29 | 0.72 | 2.18 | 0.65 | 0.62 | 49.31 | 13.19 | N/A | 1,268.53 | 189,475.12 | 226.08 | 680.08 | 202.62 | 193.84 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 3.99 | 0.02 | 0.01 | 0.00 | 0.00 | 64.21 | 13.53 | N/A | 0.97 | 39.86 | 0.19 | 0.14 | 0.05 | 0.05 | 642.06 | 135.31 | N/A | 301.11 | 12,436.28 | 58.73 | 42.61 | 15.33 | 14.67 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 10.31 | 68.75 | 0.90 | 4.49E+00 | 4.18E-01 | 4.15E-01 | 71.32 | 15.33 | N/A | 126.76 | 730.71 | 17.64 | 104.05 | 8.70 | 8.67 | 708.62 | 152.08 | N/A | 43,652.60 | 232,084.64 | 6,330.93 | 37,848.04 | 3,131.06 | 3,121.62 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.24** | **69.42** | **22.85** | **4.50** | **0.44** | **0.44** | **72.95** | **16.08** | **3.08** | **142.16** | **732.46** | **541.04** | **104.09** | **8.75** | **8.72** | **712.84** | **154.05** | **74.00** | **48,457.40** | **232,630.64** | **169,631.73** | **37,860.21** | **3,147.91** | **3,138.46** | **221,918.81** | **47,962.26** | **23,088.00** |

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions
**Year: 2045**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.06 | 3.06 | 0.62 | 4.02 | 0.31 | 0.31 | N/A | N/A | N/A | 73.54 | 73.54 | 14.81 | 96.46 | 7.46 | 7.46 | N/A | N/A | N/A | 26,842.61 | 26,842.61 | 5,407.42 | 35,206.61 | 2,723.16 | 2,723.16 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.63 | 56.36 | 0.08 | 0.22 | 0.07 | 0.07 | 5.39 | 1.44 | N/A | 4.13 | 563.45 | 0.76 | 2.18 | 0.70 | 0.67 | 49.31 | 13.19 | N/A | 1,289.10 | 175,797.07 | 235.77 | 679.20 | 217.64 | 208.21 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 3.76 | 0.02 | 0.01 | 0.01 | 0.00 | 64.21 | 13.53 | N/A | 0.97 | 37.60 | 0.19 | 0.14 | 0.05 | 0.05 | 642.06 | 135.31 | N/A | 301.65 | 11,732.47 | 59.00 | 42.57 | 15.93 | 15.24 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 10.16 | 63.98 | 0.87 | 4.27E+00 | 4.07E-01 | 4.03E-01 | 71.32 | 15.33 | N/A | 122.93 | 680.71 | 16.89 | 98.94 | 8.36 | 8.32 | 708.62 | 152.08 | N/A | 42,250.51 | 216,279.58 | 6,054.19 | 35,980.47 | 3,002.29 | 2,992.17 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.08** | **64.65** | **22.82** | **4.29** | **0.43** | **0.42** | **72.95** | **16.08** | **3.08** | **138.33** | **682.46** | **540.29** | **98.98** | **8.41** | **8.38** | **712.84** | **154.05** | **74.00** | **47,055.31** | **216,825.58** | **169,354.99** | **35,992.63** | **3,019.14** | **3,009.02** | **221,918.81** | **47,962.26** | **23,088.00** |

**Year: 2046**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 2.90 | 2.90 | 0.58 | 3.81 | 0.29 | 0.29 | N/A | N/A | N/A | 69.64 | 69.64 | 14.03 | 91.34 | 7.07 | 7.07 | N/A | N/A | N/A | 25,419.41 | 25,419.41 | 5,120.72 | 33,339.95 | 2,578.78 | 2,578.78 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.64 | 51.19 | 0.08 | 0.22 | 0.08 | 0.07 | 5.39 | 1.44 | N/A | 4.23 | 511.80 | 0.80 | 2.17 | 0.75 | 0.72 | 49.31 | 13.19 | N/A | 1,319.59 | 159,681.36 | 249.30 | 678.14 | 234.48 | 224.33 | 15,384.69 | 4,113.95 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.10 | 3.49 | 0.02 | 0.01 | 0.01 | 0.01 | 64.21 | 13.53 | N/A | 0.97 | 34.93 | 0.19 | 0.14 | 0.05 | 0.05 | 642.06 | 135.31 | N/A | 302.75 | 10,898.78 | 59.51 | 42.52 | 16.58 | 15.86 | 200,322.07 | 42,215.88 | N/A |
| Yearly Operational Total | 10.00 | 58.38 | 0.84 | 4.06E+00 | 3.96E-01 | 3.92E-01 | 71.32 | 15.33 | N/A | 119.13 | 622.49 | 16.15 | 93.82 | 8.02 | 7.98 | 708.62 | 152.08 | N/A | 40,858.90 | 197,906.99 | 5,781.53 | 34,112.70 | 2,875.41 | 2,864.53 | 220,602.04 | 47,348.05 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **15.93** | **59.05** | **22.79** | **4.08** | **0.42** | **0.41** | **72.95** | **16.08** | **3.08** | **134.53** | **624.24** | **539.55** | **93.86** | **8.07** | **8.04** | **712.84** | **154.05** | **74.00** | **45,663.70** | **198,452.99** | **169,082.33** | **34,124.87** | **2,892.25** | **2,881.38** | **221,918.81** | **47,962.26** | **23,088.00** |

## Summary Data Request

## Construction

**Sources included in the proposed project:**

| | *Schedule* | *Notes and Assumptions* |
|---|---|---|
| ***Construction Sources / Assumptions (See Construction Tab for information provided by CCL - for rows 6-12)*** | | |
| Construction of module 6 | 4/1/2017 - 9/30/2017 | Construction equipment assumptions based on data provided on July 20, 2011 and included in construction tab (attached). Since construction contractors would be large operators of diesel off-road equipment, all off-road diesel equipment would be compliant with CARB requirements at the time of construction. After 2020, all off-road diesel equipment would meet Tier 4 Final emission standards. When there are inconsistencies associated with the # and type of equipment for the activities (i.e. water truck should be used for the entire project duration, need a paver for paving activities), the project specific data provided have been supplemented with the appropriate equipment for consistency. The total area for the proposed lateral expansion is 142.7 acres as per Figure 2-1, Existing and Proposed Landfill footprint. Schedule information provided by CCL team via email from Brenda Eells/CH2M on 8/13/15 (CCL - construction operation schedule and information.msg). |
| Construction of module 7 | 4/1/2021 - 9/30/2021 | |
| Construction of module 8 | 4/1/2025 - 9/30/2025 | |
| Construction of module 9 | 4/1/2029 - 9/30/2029 | |
| Construction of module 10 | 4/1/2033 - 9/30/2033 | |
| Construction of module 11 | 4/1/2037 - 9/30/2037 | |
| Construction of module 12 | 4/1/2041 - 9/30/2041 | |
| | | |
| ***New Entrance Area and Construction*** | | |
| Construction of new paved road entrance | **10 days** | **Area paved: 1.5 miles long from entrance into landfill - assumes an average road width of 20 feet wide for total area to be paved of approximately 8 acres**. Note: we have modified the equipment provided to include a paver based on the construction of the paved entrance. **2 weeks to pave road** |
| Other Construction Activities (Construction of parking, administration building, larger berm, and scale house) | 4/1/2018 - 9/30/2018 | Size and volumes were estimated from site plans. Approximate size of buildings: 22,925 square feet. Approximate area to be paved for parking: 116,875 square feet (~2.7 acres). Approximate volume of soil to be cut / filled for construction of the berm 1,317,911 cubic feet. Air Quality team made assumptions regarding the type and number of equipment needed to build these buildings based on model default schedule and # of equipment. Assumed the berm material was excavated from onsite soil and not imported. Total area for new entrance (including new paved road): Approx. 30 acres (based on maps and estimated areas) -> provided by CCL team via email from Brenda Eells/CH2M on 8/13/15 (CCL - construction operation schedule and information.msg). |

| | | |
|---|---|---|
| ***Construction Truck Trips (See Construction Tab for information provided by CCL - also taken from previous analysis)*** | | |
| Construction employees: Data provided on 07/20/2011 will be used instead of what is provided in project description which indicates 100 daily construction workers and is not schedule specific | Corresponds with construction module schedule | 40 workers for module construction, 10 workers for new entrance construction, workers for other construction activities based on AQ model to generate default # of construction workers for other construction activities based on size of buildings. All construction worker travel would be offsite on paved roads and is about 20 miles one-way (including 3 miles from the interstate to the facility entrance). |
| Onsite pickup trucks: | | Based on previous data provided it is assumed that an onsite truck travels about 1.25 miles / hr (~10 miles in an 8 hr day). Based on previous data 20% of that travel is on paved roads and 80% is on unpaved roads. Based on data provided on construction tab (07/20/2011) indicating that the truck would operate 4hrs / day: each truck would travel ~1 mile on paved roads and ~4 miles on unpaved roads per day. |
| Other construction equipment: | | Additional travel other than equipment operation is minimal and not included in analysis. |

## Summary Data Request

## Operation

| *Operational Sources / Assumptions:* | *Schedule* | *Notes and Assumptions* |
|---|---|---|
| Landfill operational emissions based on disposal capacity: Total from build out (89.3 total - 23.2 from existing facility) = 66.1 MMCY spread out over construction of 7 new modules = 9.44 MMCY per module increase. | Emissions calculated for all years during which construction and operation would overlap. | ***Source of Data - Based on data provided by Golder Associates (04/2011 , updated 03/2015)***<br><br>Annual LFG recovery rate will be 85% with implementation of project BMPs (SCS, 2016a), therefore it is assumed that 85% of the LFG will be combusted by the flares and 15% will be fugitive. The fugitive landfill emissions will be calculated using the LFG generation for each year, the amount not recovered (15%), and emission factors for CH4 and CO2 based on the 2011 % concentration (50 / 50%) and the toxic pollutants based on the landfill source test data.<br>For air dispersion modeling the source characteristics will be chosen so that they are representative of the landfill area. (representative data will be used) |

| | | |
|---|---|---|
| **Operation of 2 additional flares (Source: Golder Associates 09/16)** | | ***The project does not include the operation of the existing two flares. The operating schedule is based Golder Associates 09/16 LFG report*** |
| Flare 1 Location: (UTM NAD 83, Zone 11): **348,900 Easting, 3,811,085 Northing (meters)** | | Flare emissions: **Flare emission rates (lbs/dscf) from the Flare 2 2012 source test (report dated 02/16/12) will be used to represent the emissions associated with the two new flares.** |
| Flare 2 Location (UTM NAD 83, Zone 11): **348,888 Easting, 3,811,078 Northing (meters)** | | Flare Stack parameters (temperature, flow rate, stack diameter): Based on SCAQMD records and source test results for the existing flares (height 50 feet, diameter 12 feet, exhaust temperature 1,596.4 F, exhaust velocity 15.6 feet per second) |

| *Operation Assumptions (See Operation Tab for information provided by CCL - also taken from previous analysis)* | *Schedule* | *Notes and Assumptions* |
|---|---|---|
| Operation Workers: includes 22 new staff - **Source: Project Description, Table 2-4 (dated October 3, 2016)** | Ramp-up: 2017-2023<br>Full Operation: 2024 | Assumes operation of the Proposed Project would ramp up evenly over a seven year period starting January 1, 2017, with full operation beginning January 1, 2024. This assumes that the new equipment and employees will be used to operate the additional capacity from the existing landfill.**(Air Quality Assumption)** |
| Operation Onsite Off-road Equipment: **Source Data Provided 7-20-11: Project description data inconsistent and less specific, therefore it is not used: (***18 new pieces of equipment (two motor graders, three bulldozers, three landfill compactors, two scrapers, two water trucks, five trailer-mounted light plants, and one water wagon* ) | Ramp-up: 2017-2023<br>Full Operation: 2024 | Assumes operation of the Proposed Project would ramp up evenly over a seven year period starting January 1, 2017, with full operation beginning January 1, 2024. Approximate hours of use for each piece of equipment are based on data provided on July 20, 2011 and are included in the operation tab (attached).***All equipment used for operation of the proposed project would meet Tier 4 Final emission standards. Note that the values provided are different that what is included in the project description - Air Quality Team will use specific data provided on 7-20-11 unless otherwise indicated.*** |

## Summary Data Request

| *Operational Waste Deliveries Assumptions* | *Schedule* | | *Notes and Assumptions* |
|---|---|---|---|
| Truck Trips | | | All truck deliveries will start at the beginning of the operation of the project and will continue at the same rate for the duration of the project. **All distances are roundtrip.** |
| Operational Truck deliveries (from Project Description: Table 2-4 in the Project Description dated 10/03/16): [1] | Net increase in number of vehicles | | **Waste Trucks**: Onsite travel on paved roads: 4 miles, Onsite travel on unpaved roads (gravel): 0.568 miles (3,000 ft RT from end of paved road to working face); road paved as much as possible as project control. Offsite travel on paved roads: 90.6 miles for transfer trucks and 28.2 miles for collection trucks. |
| | HHDT | 272 | **Onsite service truck**: Operate 4hrs per day which equates to 5 miles traveled total (~1 miles on paved and 4 miles on unpaved roads - same assumption as for construction service trucks. |
| | MHDT | 300 | **Offsite vehicle travel** (employees, waste trucks): 40 miles on paved roads (Includes 6 miles on paved roads from the interstate) |
| | LHDT2 | 0 | Total duration of waste truck idling time is 3.5 min. |
| | LDT2 | 0 | ***Assumes operation of the Proposed Project would ramp up evenly over a seven year period starting January 1, 2017, with full operation beginning January 1, 2024.*** |
| | LDT1 | 0 | |
| | LDA | 22 | |

***Sources not a part of the proposed project and not included in the evaluation:***

Operation of 2 existing flares
Operation of the waste to energy generation unit.

*Notes:*

[1] *Per EMFAC Users guide truck classification is as follows: HHDT (33001 - 60000), MHDT (14001 - 33000), LHDT2 (100001 - 14000), LHDT1 (8501 - 10000), LDT2 (3751- 5750), LDT1 (0 - 3750), LDA (all passenger cars))*

## Methodology Assumptions:

The project would include mitigation measures to reduce fugitive dust emissions during construction and operation.
Total annual project emissions are compared to the SCAQMD emission thresholds
Mitigation measures are used whenever the annual project emissions exceed the SCAQMD daily thresholds
Annual construction and operation emissions estimated for each year of construction activity.

## Chiquita Canyon Landfill EIR

**Summary of Construction and Operation Sources Used in LST and Criteria Modeling**

| Source Group | Name of Source(s) In AERMOD | Source Type | Number of Sources | Source Area ($m^2$) | Description of Sources |
|---|---|---|---|---|---|
| Flares | FLARE(1-2) | Point | 2 | N/A | Landfill Gas Flares |
| Module 11 Operation Exhaust | M11_(001-153) | Point | 153 | N/A | Offroad Construction Equipment and Truck Exhaust |
| Module 12 Construction Exhaust | M12_(001-108) | Point | 108 | N/A | Offroad Operational Equipment and Truck Exhaust |
| Composting Operation Exhaust | COMP_(001-268) | Point | 268 | N/A | Offroad Composting Equipment and Truck Exhaust |
| Truck Idle | IDLE_(01-22) | Point | 22 | N/A | Waste Collection Truck Exhaust |
| Onsite Paved Roads | OSP_OP(18-44) | Volume | 27 | N/A | Exhaust and Fugitive Emissions From On-site Paved Road Travel |
| Onsite Unpaved Roads | OSU_(0002-0016) | Volume | 15 | N/A | Exhaust and Fugitive Emissions From On-site Unpaved Road Travel |
| Module 11 Operation Fugitive Dust | MODULE11 | Area | 1 | 96,261 | Offroad Construction Fugitive Dust |
| Module 12 Construction Fugitive Dust | MODULE12 | Area | 1 | 67,074 | Offroad Operational Fugitive Dust |
| Composting Operation Fugitive Dust | COMP | Area | 1 | 166,005 | Offroad Composting Fugitive Dust |

**Chiquita Canyon Landfill EIR**

**Summary of Construction and Operation Emissions Used in LST and Criteria Modeling**

| | Emissions (pound per hour total for all sources) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Point/Volume Sources** | **1-hr CO** | **8-hr CO** | **1-hr $NO_2$** | **Annual $NO_2$** | **1-hr $SO_2$** | **3-hr $SO_2$** | **24-hr $SO_2$** | **24-hr $PM_{10}$** | **Annual $PM_{10}$** | **24-hr $PM_{2.5}$** | **Annual $PM_{2.5}$** |
| Flares | 3.95 | 3.95 | 3.95 | 3.95 | 5.18 | 5.18 | 5.18 | 0.40 | 0.40 | 0.40 | 0.40 |
| Module 11 Operation Exhaust | 6.37 | 6.37 | 0.79 | 0.22 | 0.023 | 0.023 | 0.0070 | 0.0061 | 0.0052 | 0.0061 | 0.0052 |
| Module 12 Construction Exhaust | 29.4 | 29.4 | 3.4 | 0.24 | 0.110 | 0.110 | 0.044 | 0.041 | 0.007 | 0.041 | 0.007 |
| Composting Operation Exhaust | 5.92 | 5.92 | 0.67 | 0.06 | 0.015 | 0.015 | 0.0016 | 0.002 | 0.002 | 0.002 | 0.002 |
| Truck Idle | 4.85E-02 | 4.85E-02 | 8.50E-01 | 3.03E-01 | 5.02E-04 | 5.02E-04 | 2.09E-04 | 4.77E-04 | 4.08E-04 | 4.56E-04 | 3.90E-04 |
| Onsite Paved Roads | 4.21E-02 | 4.21E-02 | 3.06E+00 | 1.09E+00 | 1.15E-02 | 1.15E-02 | 4.80E-03 | 2.03E+01 | 1.74E+01 | 5.00E+00 | 4.27E+00 |
| Onsite Unpaved Roads | 5.98E-03 | 5.98E-03 | 4.35E-01 | 1.55E-01 | 1.64E-03 | 1.64E-03 | 6.82E-04 | 6.42E+00 | 5.49E+00 | 6.43E-01 | 5.50E-01 |

| | Emissions (pounds per hour) | | | |
|---|---|---|---|---|
| **Area Sources** | **24-hr $PM_{10}$** | **Annual $PM_{10}$** | **24-hr $PM_{2.5}$** | **Annual $PM_{2.5}$** |
| Module 11 Operation Fugitive Dust | 0.72 | 0.15 | 0.56 | 0.12 |
| Module 12 Construction Fugitive Dust | 7.42 | 1.53 | 1.18 | 0.24 |
| Composting Operation Fugitive Dust | 0.18 | 0.08 | 0.15 | 0.07 |

| | Emissions (gram per second per source) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Point/Volume Sources** | **1-hr CO** | **8-hr CO** | **1-hr $NO_2$** | **Annual $NO_2$** | **1-hr $SO_2$** | **3-hr $SO_2$** | **24-hr $SO_2$** | **24-hr $PM_{10}$** | **Annual $PM_{10}$** | **24-hr $PM_{2.5}$** | **Annual $PM_{2.5}$** |
| Flares | 2.49E-01 | 2.49E-01 | 2.49E-01 | 2.49E-01 | 3.26E-01 | 3.26E-01 | 3.26E-01 | 2.52E-02 | 2.52E-02 | 2.52E-02 | 2.52E-02 |
| Module 11 Operation Exhaust | 5.24E-03 | 5.24E-03 | 6.52E-04 | 1.79E-04 | 1.86E-05 | 1.86E-05 | 5.73E-06 | 5.01E-06 | 4.28E-06 | 5.01E-06 | 4.28E-06 |
| Module 12 Construction Exhaust | 3.42E-02 | 3.42E-02 | 3.95E-03 | 2.80E-04 | 1.28E-04 | 1.28E-04 | 5.09E-05 | 4.82E-05 | 8.55E-06 | 4.82E-05 | 8.55E-06 |
| Composting Operation Exhaust | 2.78E-03 | 2.78E-03 | 3.16E-04 | 2.93E-05 | 7.05E-06 | 7.05E-06 | 7.64E-07 | 1.06E-06 | 9.04E-07 | 1.06E-06 | 9.04E-07 |
| Truck Idle | 2.78E-04 | 2.78E-04 | 4.87E-03 | 1.73E-03 | 2.87E-06 | 2.87E-06 | 1.20E-06 | 2.73E-06 | 2.34E-06 | 2.61E-06 | 2.23E-06 |
| Onsite Paved Roads | 1.97E-04 | 1.97E-04 | 1.43E-02 | 5.09E-03 | 5.38E-05 | 5.38E-05 | 2.24E-05 | 9.49E-02 | 8.11E-02 | 2.33E-02 | 1.99E-02 |
| Onsite Unpaved Roads | 5.02E-05 | 5.02E-05 | 3.65E-03 | 1.30E-03 | 1.37E-05 | 1.37E-05 | 5.73E-06 | 5.39E-02 | 4.61E-02 | 5.40E-03 | 4.62E-03 |

| | Emissions (grams per second per square meter) | | | |
|---|---|---|---|---|
| **Area Sources** | **24-hr $PM_{10}$** | **Annual $PM_{10}$** | **24-hr $PM_{2.5}$** | **Annual $PM_{2.5}$** |
| Module 11 Operation Fugitive Dust | 9.41E-07 | 7.31E-07 | 1.96E-07 | 1.52E-07 |
| Module 12 Construction Fugitive Dust | 1.39E-05 | 2.21E-06 | 2.88E-06 | 4.51E-07 |
| Composting Operation Fugitive Dust | 1.33E-07 | 1.14E-07 | 6.23E-08 | 5.32E-08 |

## HARP Area sources

| Module | Area Source Size ($m^2$) | AERMOD Input |
|---|---|---|
| Module 6 | 60,278.88 | 1.65896E-05 |
| Module 7 | 71,055.57 | 1.40735E-05 |
| Module 8 | 47,837.00 | 2.09043E-05 |
| Module 9 | 117,479.77 | 8.5121E-06 |
| Module 10 | 110,803.29 | 9.025E-06 |
| Module 11 | 96,260.55 | 1.03885E-05 |
| Module 12 | 67,073.74 | 1.4909E-05 |
| Main | 716,292.38 | 1.39608E-06 |
| Compost - 2039 | 166005.43 | 6.0239E-06 |

| 2039 Total active landfill area | 30 year average Total active landfill area |
|---|---|
| 1,220,007.44 | 1,287,081.18 |

Note:
Each area source was modeled as 1/area
Long term compost emissions are allocated evenly over the entire landfill footprint

| | | 30 year average | |
|---|---|---|---|
| **Diesel PM Exhaust Emissions** | **# of sources** | **lb/hr** | **lb/yr** |
| Compost Operation | Added to modules | No DPM health values for acute health index | 8.120E-03 |
| Compost Construction | Added to modules | | 1.160E-02 |
| | | | |
| Main Landfill Operation | 1146 | | 2.788E-02 |
| Module 6 Operation | 101 | | 2.788E-02 |
| Module 6 Construction | 101 | | 5.554E-01 |
| **Module 6 Total** | | | **5.833E-01** |
| Module 7 Operation | 115 | | 2.788E-02 |
| Module 7 Construction | 115 | | 3.022E-02 |
| **Module 7 Total** | | | **5.810E-02** |
| Module 8 Operation | 81 | | 2.788E-02 |
| Module 8 Construction | 81 | | 3.803E-02 |
| **Module 8 Total** | | | **6.591E-02** |
| Module 9 Operation | 176 | | 2.788E-02 |
| Module 9 Construction | 176 | | 2.376E-02 |
| **Module 9 Total** | | | **5.164E-02** |
| Module 10 Operation | 193 | | 2.788E-02 |
| Module 10 Construction | 193 | | 2.269E-02 |
| **Module 10 Total** | | | **5.057E-02** |
| Module 11 Operation | 155 | | 2.788E-02 |
| Module 11 (construction) | 155 | | 2.541E-02 |
| **Module 11 Total** | | | **5.329E-02** |
| Module 12 (operation) | 108 | | 2.788E-02 |
| Module 12 (construction) | 108 | | 3.142E-02 |
| **Module 12 Total** | | | **5.930E-02** |
| Operation Onsite unpaved | 15 | | 1.051E-01 |
| Construction Onsite unpaved | 15 | | 9.030E-05 |
| **Total Onsite Unpaved** | | | **1.052E-01** |
| Operation Onsite paved | 27 | | 4.113E-01 |
| Construction Onsite paved | 27 | | 1.254E-05 |
| **Total Onsite Paved** | | | **4.113E-01** |
| Compost Construction Offsite | 150 | | 5.152E-04 |
| Operation Offsite | 150 | | 1.116E-01 |
| Construction Offsite | 150 | | 2.335E-03 |
| **Total Offsite** | | | **1.144E-01** |
| Idle | 22 | | 1.885E-01 |
| Entrance Construction | 22 | | 7.262E-01 |
| **Entrance Total** | | | **9.147E-01** |

Note:
Each individual source was modeled in 1 g/s in AERMOD. Emissions were divided by number of individual sources per source group
Onsite emissions are unpaved source group (OSUP) plus onsite paved (OSP)
Onsite compost operation/construction emissions are allocated over the entire facility
Long term emissions are based on a 30 year average
Diesel PM exhaust does not have acute values therefore short term emissions were not included

**HARP Emissions**

| | Short Term 2039; Long Term 30 year average | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Compost | | Flare | | Per Flare | | Total Operation LFG | | Main Landfill | | Module 6 | | Module 7 | | Module 8 | | Module 9 | | Module 10 | | Module 11 | | Module 12 | |
| | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year |
| Hydrogen sulfide 2 | 0 | 0 | 6.317E-04 | 3.591E+00 | 3.158E-04 | 1.796 | 8.421E-01 | 6247.1 | 4.944E-01 | 3477 | 4.161E-02 | 292.6 | 4.905E-02 | 344.9 | 3.302E-02 | 232.2 | 8.109E-02 | 570.2 | 7.648E-02 | 537.8 | 6.645E-02 | 467.2 | 0 | 325.6 |
| Benzene 2 | 0 | 0 | 5.791E-06 | 3.293E-02 | 2.896E-06 | 0.01646 | 9.741E-02 | 722.6 | 5.719E-02 | 402.1 | 4.813E-03 | 33.84 | 5.673E-03 | 39.89 | 3.819E-03 | 26.86 | 9.380E-03 | 65.95 | 8.847E-03 | 62.21 | 7.685E-03 | 54.04 | 0 | 37.66 |
| Benzylchloride 2 | 0 | 0 | 1.760E-05 | 1.000E-01 | 8.798E-06 | 0.05002 | 9.228E-03 | 68.46 | 5.418E-03 | 38.10 | 4.559E-04 | 3.206 | 5.375E-04 | 3.779 | 3.618E-04 | 2.544 | 8.886E-04 | 6.248 | 8.381E-04 | 5.893 | 7.281E-04 | 5.120 | 0 | 3.567 |
| Chlorobenzene 2 | 0 | 0 | 1.043E-05 | 5.931E-02 | 5.216E-06 | 0.02965 | 6.910E-03 | 51.26 | 4.057E-03 | 28.53 | 3.414E-04 | 2.401 | 4.025E-04 | 2.830 | 2.710E-04 | 1.905 | 6.654E-04 | 4.679 | 6.276E-04 | 4.413 | 5.452E-04 | 3.834 | 0 | 2.671 |
| Dichlorobenzene 2 | 0 | 0 | 2.725E-05 | 1.549E-01 | 1.362E-05 | 0.07746 | 3.407E-02 | 252.7 | 2.000E-02 | 140.6 | 1.683E-03 | 11.84 | 1.984E-03 | 13.95 | 1.336E-03 | 9.393 | 3.281E-03 | 23.07 | 3.094E-03 | 21.76 | 2.688E-03 | 18.90 | 0 | 13.17 |
| 31,1-Dichloroethane 2 | 0 | 0 | 9.172E-06 | 5.215E-02 | 4.586E-06 | 0.02607 | 6.076E-03 | 45.07 | 3.567E-03 | 25.08 | 3.002E-04 | 2.111 | 3.539E-04 | 2.488 | 2.382E-04 | 1.675 | 5.851E-04 | 4.114 | 5.518E-04 | 3.880 | 4.794E-04 | 3.371 | 0 | 2.349 |
| 1,2-Dichloroethane 2 | 0 | 0 | 9.171E-06 | 5.214E-02 | 4.586E-06 | 0.02607 | 1.526E-02 | 113.2 | 8.962E-03 | 63.02 | 7.542E-04 | 5.303 | 8.890E-04 | 6.251 | 5.985E-04 | 4.209 | 1.470E-03 | 10.34 | 1.386E-03 | 9.748 | 1.204E-03 | 8.469 | 0 | 5.901 |
| 1,1-Dichloroethylene 2 | 0 | 0 | 8.984E-06 | 5.108E-02 | 4.492E-06 | 0.02554 | 5.951E-03 | 44.15 | 3.494E-03 | 24.57 | 2.940E-04 | 2.068 | 3.466E-04 | 2.437 | 2.334E-04 | 1.641 | 5.731E-04 | 4.030 | 5.405E-04 | 3.801 | 4.696E-04 | 3.302 | 0 | 2.301 |
| Dichloromethane 2 | 0 | 0 | 1.679E-05 | 9.548E-02 | 8.397E-06 | 0.04774 | 2.112E-02 | 156.7 | 1.240E-02 | 87.19 | 1.043E-03 | 7.337 | 1.230E-03 | 8.649 | 8.281E-04 | 5.823 | 2.034E-03 | 14.30 | 1.918E-03 | 13.49 | 1.666E-03 | 11.72 | 0 | 8.164 |
| 1,2-dibromoethane 2 | 0 | 0 | 1.741E-05 | 9.899E-02 | 8.705E-06 | 0.04949 | 1.153E-02 | 85.56 | 6.771E-03 | 47.61 | 5.698E-04 | 4.007 | 6.717E-04 | 4.723 | 4.522E-04 | 3.180 | 1.111E-03 | 7.809 | 1.047E-03 | 7.365 | 9.100E-04 | 6.399 | 0 | 4.459 |
| Perchloroethene 2 | 0 | 0 | 1.229E-05 | 6.990E-02 | 6.147E-06 | 0.03495 | 3.519E-02 | 261.0 | 2.066E-02 | 145.3 | 1.739E-03 | 12.22 | 2.049E-03 | 14.41 | 1.380E-03 | 9.701 | 3.388E-03 | 23.83 | 3.196E-03 | 22.47 | 2.776E-03 | 19.52 | 0 | 13.60 |
| Carbon tetrachloride 2 | 0 | 0 | 1.140E-05 | 6.484E-02 | 5.702E-06 | 0.03242 | 8.263E-03 | 61.30 | 4.851E-03 | 34.11 | 4.083E-04 | 2.871 | 4.812E-04 | 3.384 | 3.240E-04 | 2.278 | 7.957E-04 | 5.595 | 7.505E-04 | 5.277 | 6.520E-04 | 4.584 | 0 | 3.194 |
| Toluene 2 | 0 | 0 | 3.307E-05 | 1.880E-01 | 1.654E-05 | 0.09401 | 9.262E-01 | 6871 | 5.438E-01 | 3824 | 4.576E-02 | 321.8 | 5.394E-02 | 379.3 | 3.632E-02 | 255.4 | 8.919E-02 | 627.1 | 8.412E-02 | 591.5 | 7.308E-02 | 513.9 | 0 | 358.0 |
| 1,1,1-trichloroethane 2 | 0 | 0 | 9.891E-06 | 5.623E-02 | 4.945E-06 | 0.02812 | 7.166E-03 | 53.16 | 4.207E-03 | 29.58 | 3.541E-04 | 2.490 | 4.174E-04 | 2.935 | 2.810E-04 | 1.976 | 6.900E-04 | 4.852 | 6.508E-04 | 4.576 | 5.654E-04 | 3.976 | 0 | 2.770 |
| Trichloroethene 2 | 0 | 0 | 9.742E-06 | 5.539E-02 | 4.871E-06 | 0.02769 | 7.059E-03 | 52.36 | 4.144E-03 | 29.14 | 3.488E-04 | 2.452 | 4.111E-04 | 2.891 | 2.768E-04 | 1.946 | 6.797E-04 | 4.779 | 6.411E-04 | 4.508 | 5.569E-04 | 3.916 | 0 | 2.729 |
| Chloroform 2 | 0 | 0 | 8.851E-06 | 5.032E-02 | 4.426E-06 | 0.02516 | 6.413E-03 | 47.57 | 3.765E-03 | 26.47 | 3.169E-04 | 2.228 | 3.735E-04 | 2.626 | 2.515E-04 | 1.768 | 6.175E-04 | 4.342 | 5.824E-04 | 4.095 | 5.060E-04 | 3.558 | 0 | 2.479 |
| Vinyl chloride 2 | 0 | 0 | 5.792E-06 | 3.293E-02 | 2.896E-06 | 0.01647 | 3.357E-03 | 24.91 | 1.971E-03 | 13.86 | 1.659E-04 | 1.166 | 1.955E-04 | 1.375 | 1.316E-04 | 0.926 | 3.233E-04 | 2.273 | 3.049E-04 | 2.144 | 2.649E-04 | 1.863 | 0 | 1.298 |
| m-Xylene 2 | 0 | 0 | 9.839E-06 | 5.594E-02 | 4.919E-06 | 0.02797 | 5.132E-01 | 3807 | 3.013E-01 | 2119 | 2.536E-02 | 178.3 | 2.989E-02 | 210.2 | 2.012E-02 | 141.5 | 4.942E-02 | 347.5 | 4.661E-02 | 327.8 | 4.050E-02 | 284.8 | 0 | 198.4 |
| o+p-Xylene 2 | 0 | 0 | 9.839E-06 | 5.594E-02 | 4.919E-06 | 0.02797 | 1.479E-01 | 1097 | 8.681E-02 | 610.4 | 7.306E-03 | 51.37 | 8.612E-03 | 60.56 | 5.798E-03 | 40.77 | 1.424E-02 | 100.1 | 1.343E-02 | 94.43 | 1.167E-02 | 82.04 | 0 | 57.16 |
| **Total Xylenes** | 0 | 0 | **1.968E-05** | **1.119E-01** | **9.839E-06** | **0.05594** | **6.611E-01** | **4904** | **3.882E-01** | **2729** | **3.266E-02** | **229.7** | **3.850E-02** | **270.7** | **2.592E-02** | **182.3** | **6.366E-02** | **447.6** | **6.004E-02** | **422.2** | **5.216E-02** | **366.8** | **0** | **255.6** |
| Ammonia | 3.08 | | 0 | 0 | 0 | 0 | 0 | 23,088 | 0 | 12849 | 0 | 1081 | 0 | 1275 | 0 | 858.1 | 0 | 2107 | 0 | 1988 | | 1727 | 0 | 1203 |

Notes:

1-g= 0.0022 lb

Short term LFG/Flares emissions are based on 2039 (the maxiumum flare emissions year) following the LST methodology

Long term LFG/Flares emissions are based on 30 year average

## Chiquita Canyon Landfill EIR

**Compost Facility Emissions - Construction and Operation**

### Source

Supplemental Air Quality Impact Assessment for Chiquita Landfill Compost Operation. SCS Engineers. November, 2016. (SCS, 2016b)

### Assumptions:

| | | |
|---|---|---|
| **Construction Schedule:** | 8 | hrs/day |
| Paving | 80 | days/year |
| Grading | 80 | days/year |
| Site Preparation | 80 | days/year |

Note: Phase duration based on May-August compost construction schedule provided by CCL and 5 working days per week. Conservatively assumes all phases would occur for the entire 4 months.

| | | |
|---|---|---|
| **Operation Schedule:** | 2.6 | hrs/day (Equipment) |
| | 24 | hrs/day (Process) |
| | 6 | days/week |
| | 52 | weeks/year |

**Process Emissions (2019 - 2046)**

| Scenario | Process Rate | VOC EF | Uncontrolled VOC Emissions | Controlled VOC Emissions | Ammonia EF | Uncontrolled Ammonia Emissions | Controlled Ammonia Emissions |
|---|---|---|---|---|---|---|---|
| | (tpd) | (lb/ton processed) | (lb/day) | (lb/day) | (lb/ton processed) | (lb/day) | (lb/day) |
| Greater than 10% Foodwaste | 560 | 4.67 | 2,615 | 523 | 0.66 | 370 | 74 |
| Less than 10% Foodwaste | 560 | 4.67 | 2,615 | 1,663 | 0.66 | 370 | 318 |

**Operation Emissions (2019-2046)**

| | Exhaust Emissions (lbs/day) | | | | | | Fugitive Emissions (lbs/day) | |
|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | PM10 | PM2.5 | PM10 | PM2.5 |
| On-Site Operation Sources | 15.4 | 1.75 | 0.4 | 0.039 | 0.054 | 0.054 | 4.2204 | 1.9686 |

Note: Off-site vechicle travel associated with operation of the compost facility is included with off-site vehicle travel for landfill operation.

**Construction Emissions**

**2019**

| | Exhaust Emissions (lbs/day) | | | | | | Fugitive Emissions (lbs/day) | |
|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | PM10 | PM2.5 | PM10 | PM2.5 |
| Paving On-Site Sources | 14.3652 | 14.9353 | 1.4259 | 0.0223 | 0.8094 | 0.7447 | 0 | 0 |
| Paving Off-Site Sources | 0.9678 | 0.0773 | 0.0515 | 0.00284 | 0.00169 | 0.00157 | 0.2258 | 0.0599 |
| Grading On-Site Sources | 40.2888 | 54.1978 | 4.8912 | 0.0617 | 2.5049 | 2.3045 | 2.1683 | 0.8991 |
| Grading Off-Site Sources | 1.2903 | 0.103 | 0.0687 | 0.00378 | 0.00226 | 0.00209 | 0.301 | 0.0798 |
| Site Prep On-Site Sources | 34.8088 | 42.5046 | 4.0188 | 0.0391 | 2.1505 | 1.9784 | 4.5166 | 2.4827 |
| Site Prep Off-Site Sources | 1.1613 | 0.0927 | 0.0618 | 0.00341 | 0.00203 | 0.00188 | 0.2709 | 0.0719 |
| Maximum Day On-Site | 89.4628 | 111.6377 | 10.3359 | 0.1231 | 5.4648 | 5.0276 | 6.6849 | 3.3818 |
| Maximum Day Off-Site | 3.4194 | 0.273 | 0.182 | 0.01003 | 0.00598 | 0.00554 | 0.7977 | 0.2116 |

Note: Maximum daily emissions assume all phases could overlap.

**2028 & 2038**

| | Exhaust Emissions (lbs/day) | | | | | | Fugitive Emissions (lbs/day) | |
|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | PM10 | PM2.5 | PM10 | PM2.5 |
| Paving On-Site Sources | 16.9276 | 1.1895 | 0.2745 | 0.0223 | 0.0366 | 0.0366 | 0 | 0 |
| Paving Off-Site Sources | 0.9024 | 0.0717 | 0.0482 | 0.00284 | 0.00168 | 0.00156 | 0.2258 | 0.0599 |
| Grading On-Site Sources | 34.7787 | 3.2778 | 0.7564 | 0.0617 | 0.1009 | 0.1009 | 2.1081 | 0.8926 |
| Grading Off-Site Sources | 1.2032 | 0.0956 | 0.0642 | 0.00378 | 0.00224 | 0.00208 | 0.301 | 0.0798 |
| Site Prep On-Site Sources | 21.2415 | 2.0615 | 0.4757 | 0.0391 | 0.0634 | 0.0634 | 4.5166 | 2.4827 |
| Site Prep Off-Site Sources | 1.0829 | 0.086 | 0.0578 | 0.00341 | 0.00202 | 0.00187 | 0.2709 | 0.0719 |
| Grading On-Site Sources | 72.9478 | 6.5288 | 1.5066 | 0.1231 | 0.2009 | 0.2009 | 6.6247 | 3.3753 |
| Grading Off-Site Sources | 3.1885 | 0.2533 | 0.1702 | 0.01003 | 0.00594 | 0.00551 | 0.7977 | 0.2116 |

Note: Maximum daily emissions assume all phases could overlap.

Chiquita Canyon Landfill SR
Mobile Sources

**Assumptions:**
In addition to mobile construction and ICI sectors for new entrance construction and company construction (private construction of the admin building, scale house, and tarp),
Calculation of the Proposed Project (worst case) as activity from a same year when tarping, January 1, 2017, with full operation beginning in 2019. Number of vehicles for 2017-2019 have been
Worst case scenario of 2019 was used for all analysis years (2019 - 2026).
Worst case is 2019.
Vehicle count is an average of a typical week scheduled in Fleet 10 and Fleet Year 6a Summary.
Trips and VMT estimated using CalEEMod default trip lengths and trip types.
Tarping activities assumed to occur on the typical work day/week/year.
Tarping activities assumed to occur on the working face of the landfill, which is the area that would be paved, or a paved overlay.

| Operating Schedule | Admin Hours | Construction Hours | Tarping Hours | Worker Trips | Vendor Trips | Hauling Trips | Worker Trips | Vendor Trips | Hauling Trips | Worker Trips | Vendor Trips | Hauling Trips | Worker Trips | Vendor Trips | Hauling Trips |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal |
| Employee Count/Trips/Day | 100 | 100 | 100 | 100 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 |
| Saturday | N | N | N | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sunday | N | N | N | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tarping | N | N | Y | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | 1st Year Vehicles | 1 Trip Veh | 2 Trip Veh | 3 Trip Veh | 4 Trip Veh | 5 Trip Veh | 6 Trip Veh | 7 Trip Veh | 8 Trip Veh | 9 Trip Veh | 10 Trip Veh | Total Trips | Total Miles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 20 |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 20 |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 20 |
| Light Duty Truck | Light Duty Truck | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 20 |
| Total | Total | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 80 |

Operation Emission Calculations
Unmitigated
Emission Rates
Summer Year - 2019
Winter Year - 2019

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Mitigated
Emission Rates
Summer Year - 2019
Winter Year - 2019

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Unmitigated
Emission Rates
Summer Year - 2020
Winter Year - 2020

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Mitigated
Emission Rates
Summer Year - 2020
Winter Year - 2020

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Unmitigated
Emission Rates
Summer Year - 2021
Winter Year - 2021

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Mitigated
Emission Rates
Summer Year - 2021
Winter Year - 2021

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Unmitigated
Emission Rates
Summer Year - 2022
Winter Year - 2022

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2022 | 2022 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2022 | 2022 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2022 | 2022 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2022 | 2022 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Mitigated
Emission Rates
Summer Year - 2022
Winter Year - 2022

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2022 | 2022 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2022 | 2022 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2022 | 2022 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2022 | 2022 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Unmitigated
Emission Rates
Summer Year - 2023
Winter Year - 2023

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2023 | 2023 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2023 | 2023 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2023 | 2023 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2023 | 2023 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Mitigated
Emission Rates
Summer Year - 2023
Winter Year - 2023

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2023 | 2023 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2023 | 2023 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2023 | 2023 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2023 | 2023 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Unmitigated
Emission Rates
Summer Year - 2024
Winter Year - 2024

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2024 | 2024 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2024 | 2024 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2024 | 2024 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2024 | 2024 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Mitigated
Emission Rates
Summer Year - 2024
Winter Year - 2024

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2024 | 2024 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2024 | 2024 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2024 | 2024 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2024 | 2024 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Unmitigated
Emission Rates
Summer Year - 2025
Winter Year - 2025

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2025 | 2025 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2025 | 2025 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2025 | 2025 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2025 | 2025 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Mitigated
Emission Rates
Summer Year - 2025
Winter Year - 2025

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2025 | 2025 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2025 | 2025 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2025 | 2025 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2025 | 2025 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Unmitigated
Emission Rates
Summer Year - 2026
Winter Year - 2026

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2026 | 2026 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2026 | 2026 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2026 | 2026 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2026 | 2026 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Operation Emission Calculations
Mitigated
Emission Rates
Summer Year - 2026
Winter Year - 2026

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Operation Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2026 | 2026 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2026 | 2026 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2026 | 2026 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2026 | 2026 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Construction Emission Calculations
Worker Construction
Mitigated
Emission Rates
Summer Year - 2019
Winter Year - 2019

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Construction Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Construction Emission Calculations
Vendor Construction
Mitigated
Emission Rates
Summer Year - 2019
Winter Year - 2019

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Construction Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2019 | 2019 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Construction Emission Calculations
Worker Construction
Mitigated
Emission Rates
Summer Year - 2020
Winter Year - 2020

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Construction Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Construction Emission Calculations
Vendor Construction
Mitigated
Emission Rates
Summer Year - 2020
Winter Year - 2020

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Construction Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2020 | 2020 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Total | Total | | | | | | | | | | | |

Construction Emission Calculations
Worker Construction
Mitigated
Emission Rates
Summer Year - 2021
Winter Year - 2021

| Equipment Type | ID Landfill Equipment Type | Equipment Code | Construction Title | Emission Factor | CO | NOx | SOx | PM | Dsl. Exhaust PM | Dsl. Exhaust PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill Equipment | Landfill Equipment | 0 | 0 | 0 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck/Fuel Truck | Water Truck/Fuel Truck | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Water Truck (HDT) | Water Truck (HDT) | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Tractor Trailer (HDT) | Tractor Trailer (HDT) | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
| Light Duty Truck | Light Duty Truck | 1 | 2021 | 2021 | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb | 0.00 lb |
|

## Chiquita Canyon Landfill EIR
**Construction Emissions - Proposed Project Exhaust Emissions**

### Assumptions: [1]

| | | |
|---|---|---|
| Construction Schedule: | 4 | weeks/month |
| | 5 | days/week |
| | 10 | hrs/day |

Additional travel other than equipment operation is minimal and not included in this analysis.
Since construction contractors would be large operators of diesel off-road equipment, all off-road diesel equipment would be compliant with CARB requirements at the time of construction.
After 2020, all off-road diesel construction equipment would meet Tier 4 Final emission standards.

### *Entrance Construction*

| | | | |
|---|---|---|---|
| Construction Period: | 4/1/2018 | to | 9/30/2018 |
| Number of workers: [2] | 20 | Duration (weeks): | 24 |

| Off Road Equipment Type | Number (ea) | Daily Hours | Annual Days Equipment Used [3] |
|---|---|---|---|
| ***Demolition*** | | | |
| Scraper - CAT 657 | 6 | 10 | 12 |
| Water Truck - 4000 gal, 3 axle, 58000 gvw | 2 | 8 | 12 |
| ***Site Preparation*** | | | |
| Bulldozer - CAT D9, D7 | 2 | 8 | 30 |
| Compactor - CAT 825/835 | 1 | 10 | 20 |
| Trailer Mounted Light Plant | 2 | 8 | 30 |
| Tractors/Loaders/Backhoes [4, 5] | 4 | 8 | 20 |
| Rubber Tired Dozers [4, 5] | 3 | 8 | 30 |
| Water Truck - 4000 gal, 3 axle, 58000 gvw | 2 | 8 | 30 |
| ***Grading*** | | | |
| Graders - CAT 14G | 2 | 8 | 12 |
| Backhoe/Loader - CAT 440 | 2 | 8 | 20 |
| Rubber Tired Dozers [4, 5] | 1 | 8 | 20 |
| Tractors/Loaders/Backhoes [4, 5] | 3 | 8 | 20 |
| Graders [4, 5] | 1 | 8 | 12 |
| Excavators [4, 5] | 1 | 8 | 12 |
| Water Truck - 4000 gal, 3 axle, 58000 gvw | 2 | 8 | 20 |
| ***Berm Construction*** [6] | | | |
| Grader | 1 | 6 | 62 |
| Tractors/Loaders/Backhoes | 1 | 6 | 62 |
| Rubber Tired Dozers | 1 | 7 | 62 |
| Soil Haul Trucks [7] | 5 | 8 | 62 |
| Water Truck - 4000 gal, 3 axle, 58000 gvw | 1 | 8 | 62 |
| ***Building Construction*** [4,8] | | | |
| Cranes | 1 | 4 | 48 |
| Forklifts | 2 | 6 | 48 |
| Tractors/Loaders/Backhoes | 2 | 8 | 48 |
| Water Truck - 4000 gal, 3 axle, 58000 gvw | 2 | 8 | 48 |
| ***Paving*** [9] | | | |
| Paver | 2 | 8 | 10 |
| Cement and Mortar Mixers | 1 | 8 | 10 |
| Rollers | 2 | 8 | 10 |
| Tractors/Loaders/Backhoes | 1 | 8 | 10 |
| Paving Equipment | 1 | 8 | 10 |

## Chiquita Canyon Landfill EIR
**Construction Emissions - Proposed Project Exhaust Emissions**

### *Entrance Construction*

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| ***Demolition*** | | | | |
| Scraper | Scrapers | 1 | 2018 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| ***Site Preparation*** | | | | |
| Bulldozer | Rubber Tired Dozers | 1 | 2018 | lb/hr |
| Compactor | Plate Compactors | 1 | 2018 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2018 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| ***Grading*** | | | | |
| Graders | Graders | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Graders | Graders | 1 | 2018 | lb/hr |
| Excavator | Excavators | 1 | 2018 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| ***Berm Construction*** | | | | |
| Graders | Graders | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2018 | lb/hr |
| Haul Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| ***Building Construction*** | | | | |
| Crane | Cranes | 1 | 2018 | lb/hr |
| Forklifts | Forklifts | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| ***Paving*** | | | | |
| Paver | Pavers | 1 | 2018 | lb/hr |
| Cement and Mortar Mixer | Cement and Mortar Mixers | 1 | 2018 | lb/hr |
| Roller | Rollers | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Paving Equipment | Paving Equipment | 1 | 2018 | lb/hr |

**Chiquita Canyon Landfill EIR**
**Construction Emissions - Proposed Project**

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 9.16E-01 | 1.53E+00 | 2.46E-01 | 3.15E-03 | 7.07E-02 | 6.50E-02 | 3.21E+02 | 2.22E-02 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 1.03E+00 | 9.22E-01 | 2.53E-01 | 2.60E-03 | 7.87E-02 | 7.24E-02 | 2.65E+02 | 2.28E-02 |
| 2.63E-02 | 3.56E-02 | 5.02E-03 | 6.71E-05 | 1.23E-03 | 1.13E-03 | 4.31E+00 | 4.53E-04 |
| 4.69E-01 | 6.58E-01 | 6.42E-02 | 9.14E-04 | 3.33E-02 | 3.06E-02 | 7.79E+01 | 5.79E-03 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 1.03E+00 | 9.22E-01 | 2.53E-01 | 2.60E-03 | 7.87E-02 | 7.24E-02 | 2.65E+02 | 2.28E-02 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 7.29E-01 | 6.49E-01 | 1.06E-01 | 1.39E-03 | 3.85E-02 | 3.54E-02 | 1.24E+02 | 9.56E-03 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 1.03E+00 | 9.22E-01 | 2.53E-01 | 2.60E-03 | 7.87E-02 | 7.24E-02 | 2.65E+02 | 2.28E-02 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 7.29E-01 | 6.49E-01 | 1.06E-01 | 1.39E-03 | 3.85E-02 | 3.54E-02 | 1.24E+02 | 9.56E-03 |
| 6.64E-01 | 5.87E-01 | 8.24E-02 | 1.26E-03 | 2.64E-02 | 2.43E-02 | 1.12E+02 | 7.43E-03 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 7.29E-01 | 6.49E-01 | 1.06E-01 | 1.39E-03 | 3.85E-02 | 3.54E-02 | 1.24E+02 | 9.56E-03 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 1.03E+00 | 9.22E-01 | 2.53E-01 | 2.60E-03 | 7.87E-02 | 7.24E-02 | 2.65E+02 | 2.28E-02 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 2.52E-01 | 5.92E-01 | 7.87E-02 | 1.26E-03 | 2.12E-02 | 1.95E-02 | 1.12E+02 | 7.10E-03 |
| 2.12E-01 | 1.88E-01 | 2.65E-02 | 3.66E-04 | 1.08E-02 | 9.94E-03 | 3.12E+01 | 2.39E-03 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 7.63E-01 | 5.02E-01 | 1.37E-01 | 1.44E-03 | 5.39E-02 | 4.96E-02 | 1.28E+02 | 1.23E-02 |
| 3.86E-02 | 5.22E-02 | 7.36E-03 | 9.83E-05 | 1.82E-03 | 1.67E-03 | 6.32E+00 | 6.64E-04 |
| 3.92E-01 | 3.26E-01 | 6.80E-02 | 6.92E-04 | 3.41E-02 | 3.14E-02 | 5.90E+01 | 6.14E-03 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 5.97E-01 | 4.47E-01 | 1.06E-01 | 1.14E-03 | 4.24E-02 | 3.90E-02 | 1.01E+02 | 9.59E-03 |

***Entrance Construction***

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| ***Demolition*** | | | | | | | | | |
| Scraper | 5.499 | 9.194 | 1.475 | 0.019 | 0.424 | 0.390 | 1,929 | 0.133 | 54.988 |
| Water Truck | 1.116 | 2.681 | 0.331 | 0.005 | 0.070 | 0.065 | 545 | 0.030 | 8.925 |
| ***Site Preparation*** | | | | | | | | | |
| Bulldozer | 2.068 | 1.844 | 0.506 | 0.005 | 0.157 | 0.145 | 530 | 0.046 | 16.540 |
| Compactor | 0.026 | 0.036 | 0.005 | 0.000 | 0.001 | 0.001 | 4 | 0.000 | 0.263 |
| Trailer Mounted Light Plant | 0.939 | 1.316 | 0.128 | 0.002 | 0.067 | 0.061 | 156 | 0.012 | 7.511 |
| Backhoe/Loader | 1.370 | 1.535 | 0.174 | 0.002 | 0.073 | 0.068 | 207 | 0.016 | 10.964 |
| Bulldozer | 3.101 | 2.766 | 0.759 | 0.008 | 0.236 | 0.217 | 795 | 0.069 | 24.810 |
| Water Truck | 1.116 | 2.681 | 0.331 | 0.005 | 0.070 | 0.065 | 545 | 0.030 | 8.925 |
| ***Grading*** | | | | | | | | | |
| Graders | 1.459 | 1.297 | 0.212 | 0.003 | 0.077 | 0.071 | 248 | 0.019 | 11.671 |
| Backhoe/Loader | 0.685 | 0.767 | 0.087 | 0.001 | 0.037 | 0.034 | 103 | 0.008 | 5.482 |
| Bulldozer | 1.034 | 0.922 | 0.253 | 0.003 | 0.079 | 0.072 | 265 | 0.023 | 8.270 |
| Backhoe/Loader | 1.028 | 1.151 | 0.130 | 0.002 | 0.055 | 0.051 | 155 | 0.012 | 8.223 |
| Graders | 0.729 | 0.649 | 0.106 | 0.001 | 0.038 | 0.035 | 124 | 0.010 | 5.835 |
| Excavator | 0.664 | 0.587 | 0.082 | 0.001 | 0.026 | 0.024 | 112 | 0.007 | 5.313 |
| Water Truck | 1.116 | 2.681 | 0.331 | 0.005 | 0.070 | 0.065 | 545 | 0.030 | 8.925 |
| ***Berm Construction*** | | | | | | | | | |
| Graders | 0.729 | 0.649 | 0.106 | 0.001 | 0.038 | 0.035 | 124 | 0.010 | 4.376 |
| Backhoe/Loader | 0.343 | 0.384 | 0.043 | 0.001 | 0.018 | 0.017 | 52 | 0.004 | 2.056 |
| Bulldozer | 1.034 | 0.922 | 0.253 | 0.003 | 0.079 | 0.072 | 265 | 0.023 | 7.236 |
| Haul Truck | 2.789 | 6.702 | 0.828 | 0.013 | 0.176 | 0.162 | 1,362 | 0.075 | 22.314 |
| Water Truck | 0.558 | 1.340 | 0.166 | 0.003 | 0.035 | 0.032 | 272 | 0.015 | 4.463 |
| ***Building Construction*** | | | | | | | | | |
| Crane | 0.252 | 0.592 | 0.079 | 0.001 | 0.021 | 0.019 | 112 | 0.007 | 1.009 |
| Forklift | 0.424 | 0.377 | 0.053 | 0.001 | 0.022 | 0.020 | 62 | 0.005 | 2.541 |
| Backhoe/Loader | 0.685 | 0.767 | 0.087 | 0.001 | 0.037 | 0.034 | 103 | 0.008 | 5.482 |
| Water Truck | 1.116 | 2.681 | 0.331 | 0.005 | 0.070 | 0.065 | 545 | 0.030 | 8.925 |
| ***Paving*** | | | | | | | | | |
| Paver | 1.526 | 1.003 | 0.273 | 0.003 | 0.108 | 0.099 | 257 | 0.025 | 12.212 |
| Cement and Mortar Mixer | 0.039 | 0.052 | 0.007 | 0.000 | 0.002 | 0.002 | 6 | 0.001 | 0.309 |
| Roller | 0.784 | 0.651 | 0.136 | 0.001 | 0.068 | 0.063 | 118 | 0.012 | 6.270 |
| Backhoe/Loader | 0.343 | 0.384 | 0.043 | 0.001 | 0.018 | 0.017 | 52 | 0.004 | 2.741 |
| Paving Equipment | 0.597 | 0.447 | 0.106 | 0.001 | 0.042 | 0.039 | 101 | 0.010 | 4.777 |
| **Total [11]** | **14.073** | **21.871** | **3.300** | **0.045** | **0.951** | **0.875** | **4,548** | **0.298** | **109.459** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 91.938 | 14.750 | 0.189 | 4.242 | 3.903 | 19,286 | 1.331 | 659.859 | 1,103.255 | 176.999 | 2.272 | 50.903 | 46.830 | 231,429 | 15.970 |
| 21.447 | 2.650 | 0.043 | 0.562 | 0.517 | 4,357 | 0.239 | 107.106 | 257.359 | 31.798 | 0.513 | 6.742 | 6.203 | 52,288 | 2.869 |
| 14.752 | 4.049 | 0.042 | 1.259 | 1.158 | 4,238 | 0.365 | 496.206 | 442.547 | 121.471 | 1.248 | 37.766 | 34.744 | 127,139 | 10.960 |
| 0.356 | 0.050 | 0.001 | 0.012 | 0.011 | 43 | 0.005 | 5.268 | 7.129 | 1.004 | 0.013 | 0.246 | 0.226 | 863 | 0.091 |
| 10.525 | 1.027 | 0.015 | 0.533 | 0.490 | 1,247 | 0.093 | 225.323 | 315.738 | 30.803 | 0.439 | 15.987 | 14.708 | 37,416 | 2.779 |
| 12.279 | 1.392 | 0.019 | 0.587 | 0.540 | 1,655 | 0.126 | 219.278 | 245.574 | 27.832 | 0.388 | 11.749 | 10.809 | 33,106 | 2.511 |
| 22.127 | 6.074 | 0.062 | 1.888 | 1.737 | 6,357 | 0.548 | 744.308 | 663.820 | 182.207 | 1.872 | 56.648 | 52.117 | 190,708 | 16.440 |
| 21.447 | 2.650 | 0.043 | 0.562 | 0.517 | 4,357 | 0.239 | 267.765 | 643.396 | 79.495 | 1.283 | 16.855 | 15.506 | 130,720 | 7.173 |
| 10.377 | 1.695 | 0.022 | 0.616 | 0.567 | 1,983 | 0.153 | 140.047 | 124.520 | 20.335 | 0.268 | 7.390 | 6.799 | 23,793 | 1.835 |
| 6.139 | 0.696 | 0.010 | 0.294 | 0.270 | 828 | 0.063 | 109.639 | 122.787 | 13.916 | 0.194 | 5.874 | 5.404 | 16,553 | 1.256 |
| 7.376 | 2.025 | 0.021 | 0.629 | 0.579 | 2,119 | 0.183 | 165.402 | 147.516 | 40.490 | 0.416 | 12.589 | 11.581 | 42,380 | 3.653 |
| 9.209 | 1.044 | 0.015 | 0.441 | 0.405 | 1,241 | 0.094 | 164.459 | 184.181 | 20.874 | 0.291 | 8.812 | 8.107 | 24,829 | 1.883 |
| 5.188 | 0.847 | 0.011 | 0.308 | 0.283 | 991 | 0.076 | 70.024 | 62.260 | 10.167 | 0.134 | 3.695 | 3.400 | 11,896 | 0.917 |
| 4.697 | 0.659 | 0.010 | 0.211 | 0.195 | 898 | 0.059 | 63.751 | 56.370 | 7.909 | 0.121 | 2.537 | 2.334 | 10,773 | 0.714 |
| 21.447 | 2.650 | 0.043 | 0.562 | 0.517 | 4,357 | 0.239 | 178.510 | 428.931 | 52.997 | 0.855 | 11.236 | 10.338 | 87,147 | 4.782 |
| 3.891 | 0.635 | 0.008 | 0.231 | 0.212 | 744 | 0.057 | 271.342 | 241.258 | 39.398 | 0.519 | 14.319 | 13.173 | 46,099 | 3.555 |
| 2.302 | 0.261 | 0.004 | 0.110 | 0.101 | 310 | 0.024 | 127.456 | 142.740 | 16.177 | 0.226 | 6.829 | 6.283 | 19,243 | 1.460 |
| 6.454 | 1.771 | 0.018 | 0.551 | 0.507 | 1,854 | 0.160 | 448.652 | 400.136 | 109.830 | 1.128 | 34.146 | 31.415 | 114,955 | 9.910 |
| 53.616 | 6.625 | 0.107 | 1.405 | 1.292 | 10,893 | 0.598 | 1,383.451 | 3,324.214 | 410.724 | 6.629 | 87.082 | 80.116 | 675,388 | 37.059 |
| 10.723 | 1.325 | 0.021 | 0.281 | 0.258 | 2,179 | 0.120 | 276.690 | 664.843 | 82.145 | 1.326 | 17.416 | 16.023 | 135,078 | 7.412 |
| 2.370 | 0.315 | 0.005 | 0.085 | 0.078 | 449 | 0.028 | 48.410 | 113.743 | 15.103 | 0.242 | 4.068 | 3.743 | 21,535 | 1.363 |
| 2.260 | 0.318 | 0.004 | 0.130 | 0.119 | 375 | 0.029 | 121.974 | 108.497 | 15.248 | 0.211 | 6.222 | 5.724 | 17,986 | 1.376 |
| 6.139 | 0.696 | 0.010 | 0.294 | 0.270 | 828 | 0.063 | 263.134 | 294.689 | 33.398 | 0.466 | 14.099 | 12.971 | 39,727 | 3.013 |
| 21.447 | 2.650 | 0.043 | 0.562 | 0.517 | 4,357 | 0.239 | 428.424 | 1,029.434 | 127.192 | 2.053 | 26.967 | 24.810 | 209,152 | 11.476 |
| 8.027 | 2.184 | 0.023 | 0.863 | 0.794 | 2,053 | 0.197 | 122.120 | 80.268 | 21.840 | 0.231 | 8.631 | 7.941 | 20,526 | 1.971 |
| 0.418 | 0.059 | 0.001 | 0.015 | 0.013 | 51 | 0.005 | 3.087 | 4.178 | 0.589 | 0.008 | 0.145 | 0.134 | 506 | 0.053 |
| 5.212 | 1.088 | 0.011 | 0.546 | 0.502 | 944 | 0.098 | 62.696 | 52.115 | 10.881 | 0.111 | 5.456 | 5.020 | 9,438 | 0.982 |
| 3.070 | 0.348 | 0.005 | 0.147 | 0.135 | 414 | 0.031 | 27.410 | 30.697 | 3.479 | 0.049 | 1.469 | 1.351 | 4,138 | 0.314 |
| 3.577 | 0.850 | 0.009 | 0.339 | 0.312 | 808 | 0.077 | 47.771 | 35.766 | 8.500 | 0.091 | 3.392 | 3.121 | 8,082 | 0.767 |
| **190.371** | **28.017** | **0.391** | **7.419** | **6.825** | **39,623** | **2.528** | **7,249.561** | **11,327.960** | **1,712.800** | **23.597** | **479.271** | **440.930** | **2,342,891** | **154.543** |

### *Module 6-12: Excavation and Construction* [10]

Number of workers: 40 Duration (weeks): 24

| Equipment Type | Number (ea) | Daily Hours | Annual Days Equipment Used [3] |
|---|---|---|---|
| Scraper push/pull - CAT 657 [13] | 23 | 10 | 72 |
| Scraper elevating - CAT 623 | 2 | 10 | 10 |
| Bulldozer - large - CAT D9 | 2 | 8 | 60 |
| Bulldozer - large - CAT D7 | 2 | 8 | 60 |
| Bulldozer - small - CAT D3 | 1 | 8 | 30 |
| Compactor- CAT 825/835 [13] | 1 | 10 | 72 |
| Graders - 16G | 2 | 8 | 40 |
| Backhoe/Loader - CAT 416, 440 | 2 | 4 | 60 |
| Water Truck - 4,000 gal 3 axle 58,000 gvw | 3 | 10 | 72 |
| Water Wagon - CAT 631G 10,000 gal | 1 | 10 | 60 |
| Trailer Mounted Light Plant | 1 | 2 | 60 |
| Wheel tractor - Case 535 | 1 | 8 | 10 |
| Backhoe/Loader - CAT 416 | 1 | 8 | 20 |
| Loader - CAT 966 | 1 | 8 | 20 |
| Off road fork lift - CAT TH83 | 1 | 8 | 10 |

**Chiquita Canyon Landfill EIR**
**Construction Emissions - Proposed Project Exhaust Emissions**

### *Module 6: Excavation and Construction*

Construction Period: 4/1/2017 to 9/30/2017

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2017 | lb/hr |
| Scraper | Scrapers | 1 | 2017 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2017 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2017 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2017 | lb/hr |
| Compactor | Plate Compactors | 1 | 2017 | lb/hr |
| Graders | Graders | 1 | 2017 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2017 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2017 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2017 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2017 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2017 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2017 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2017 | lb/hr |
| Forklifts | Forklifts | 1 | 2017 | lb/hr |

### *Module 7: Excavation and Construction*

Construction Period: 4/1/2021 to 9/30/2021

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2021 | lb/hr |
| Scraper | Scrapers | 1 | 2021 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2021 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2021 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2021 | lb/hr |
| Compactor | Plate Compactors | 1 | 2021 | lb/hr |
| Graders | Graders | 1 | 2021 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2021 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2021 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2021 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2021 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2021 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2021 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2021 | lb/hr |
| Forklifts | Forklifts | 1 | 2021 | lb/hr |

### *Module 8: Excavation and Construction*

Construction Period: 4/1/2025 to 9/30/2025

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2025 | lb/hr |
| Scraper | Scrapers | 1 | 2025 | lb/hr |

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 9.60E-01 | 1.72E+00 | 2.59E-01 | 3.15E-03 | 7.77E-02 | 7.15E-02 | 3.21E+02 | 2.34E-02 |
| 9.60E-01 | 1.72E+00 | 2.59E-01 | 3.15E-03 | 7.77E-02 | 7.15E-02 | 3.21E+02 | 2.34E-02 |
| 1.10E+00 | 1.06E+00 | 2.66E-01 | 2.60E-03 | 8.49E-02 | 7.81E-02 | 2.65E+02 | 2.40E-02 |
| 1.10E+00 | 1.06E+00 | 2.66E-01 | 2.60E-03 | 8.49E-02 | 7.81E-02 | 2.65E+02 | 2.40E-02 |
| 1.10E+00 | 1.06E+00 | 2.66E-01 | 2.60E-03 | 8.49E-02 | 7.81E-02 | 2.65E+02 | 2.40E-02 |
| 2.63E-02 | 3.79E-02 | 5.02E-03 | 6.71E-05 | 1.23E-03 | 1.13E-03 | 4.31E+00 | 4.53E-04 |
| 7.30E-01 | 7.43E-01 | 1.14E-01 | 1.39E-03 | 4.29E-02 | 3.95E-02 | 1.24E+02 | 1.02E-02 |
| 3.44E-01 | 4.40E-01 | 4.77E-02 | 6.07E-04 | 2.17E-02 | 1.99E-02 | 5.17E+01 | 4.30E-03 |
| 5.68E-01 | 1.51E+00 | 1.75E-01 | 2.67E-03 | 3.97E-02 | 3.65E-02 | 2.72E+02 | 1.58E-02 |
| 5.68E-01 | 1.51E+00 | 1.75E-01 | 2.67E-03 | 3.97E-02 | 3.65E-02 | 2.72E+02 | 1.58E-02 |
| 4.73E-01 | 7.54E-01 | 7.25E-02 | 9.14E-04 | 3.81E-02 | 3.50E-02 | 7.79E+01 | 6.54E-03 |
| 3.44E-01 | 4.40E-01 | 4.77E-02 | 6.07E-04 | 2.17E-02 | 1.99E-02 | 5.17E+01 | 4.30E-03 |
| 3.44E-01 | 4.40E-01 | 4.77E-02 | 6.07E-04 | 2.17E-02 | 1.99E-02 | 5.17E+01 | 4.30E-03 |
| 3.44E-01 | 4.40E-01 | 4.77E-02 | 6.07E-04 | 2.17E-02 | 1.99E-02 | 5.17E+01 | 4.30E-03 |
| 2.13E-01 | 2.16E-01 | 2.87E-02 | 3.66E-04 | 1.28E-02 | 1.17E-02 | 3.12E+01 | 2.59E-03 |

### *Module 6: Excavation and Construction*

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 22.085 | 39.648 | 5.967 | 0.073 | 1.787 | 1.644 | 7,393 | 0.538 | 220.854 |
| Scraper | 1.920 | 3.448 | 0.519 | 0.006 | 0.155 | 0.143 | 643 | 0.047 | 19.205 |
| Bulldozer | 2.194 | 2.114 | 0.532 | 0.005 | 0.170 | 0.156 | 530 | 0.048 | 17.556 |
| Bulldozer | 2.194 | 2.114 | 0.532 | 0.005 | 0.170 | 0.156 | 530 | 0.048 | 17.556 |
| Bulldozer | 1.097 | 1.057 | 0.266 | 0.003 | 0.085 | 0.078 | 265 | 0.024 | 8.778 |
| Compactor | 0.026 | 0.038 | 0.005 | 0.000 | 0.001 | 0.001 | 4 | 0.000 | 0.263 |
| Graders | 1.460 | 1.487 | 0.227 | 0.003 | 0.086 | 0.079 | 248 | 0.020 | 11.682 |
| Backhoe/Loader | 0.688 | 0.879 | 0.095 | 0.001 | 0.043 | 0.040 | 103 | 0.009 | 2.753 |
| Water Truck | 1.703 | 4.524 | 0.526 | 0.008 | 0.119 | 0.110 | 817 | 0.047 | 17.029 |
| Water Wagon | 0.568 | 1.508 | 0.175 | 0.003 | 0.040 | 0.037 | 272 | 0.016 | 5.676 |
| Trailer Mounted Light Plant | 0.473 | 0.754 | 0.072 | 0.001 | 0.038 | 0.035 | 78 | 0.007 | 0.946 |
| Tractor | 0.344 | 0.440 | 0.048 | 0.001 | 0.022 | 0.020 | 52 | 0.004 | 2.753 |
| Backhoe/Loader | 0.344 | 0.440 | 0.048 | 0.001 | 0.022 | 0.020 | 52 | 0.004 | 2.753 |
| Loader | 0.344 | 0.440 | 0.048 | 0.001 | 0.022 | 0.020 | 52 | 0.004 | 2.753 |
| Forklift | 0.213 | 0.216 | 0.029 | 0.000 | 0.013 | 0.012 | 31 | 0.003 | 1.700 |
| **Total [12]** | **35.655** | **59.105** | **9.089** | **0.110** | **2.771** | **2.550** | **11,069** | **0.820** | **332.258** |

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.90E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.90E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.97E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.97E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.97E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 7.70E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 3.07E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.28E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.28E-02 |
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 4.11E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 3.07E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 3.07E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 3.07E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.87E-03 |

### *Module 7: Excavation and Construction*

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.436 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.038 | 16.855 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.039 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.039 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.020 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.015 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.006 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.038 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.013 | 7.372 |
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.004 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklift | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total [12]** | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.661** | **277.489** |

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |

### *Module 8: Excavation and Construction*

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.364 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.032 | 16.855 |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 396.482 | 59.672 | 0.726 | 17.865 | 16.436 | 73,929 | 5.384 | 15,901.456 | 28,546.732 | 4,296.409 | 52.246 | 1,286.282 | 1,183.379 | 5,322,856 | 387.658 |
| 34.477 | 5.189 | 0.063 | 1.553 | 1.429 | 6,429 | 0.468 | 192.047 | 344.767 | 51.889 | 0.631 | 15.535 | 14.292 | 64,286 | 4.682 |
| 16.910 | 4.256 | 0.042 | 1.359 | 1.250 | 4,238 | 0.384 | 1,053.345 | 1,014.619 | 255.371 | 2.496 | 81.513 | 74.992 | 254,278 | 23.042 |
| 16.910 | 4.256 | 0.042 | 1.359 | 1.250 | 4,238 | 0.384 | 1,053.345 | 1,014.619 | 255.371 | 2.496 | 81.513 | 74.992 | 254,278 | 23.042 |
| 8.455 | 2.128 | 0.021 | 0.679 | 0.625 | 2,119 | 0.192 | 263.336 | 253.655 | 63.843 | 0.624 | 20.378 | 18.748 | 63,569 | 5.760 |
| 0.379 | 0.050 | 0.001 | 0.012 | 0.011 | 43 | 0.005 | 18.965 | 27.302 | 3.615 | 0.048 | 0.884 | 0.814 | 3,106 | 0.326 |
| 11.895 | 1.817 | 0.022 | 0.687 | 0.632 | 1,983 | 0.164 | 467.288 | 475.810 | 72.666 | 0.892 | 27.480 | 25.282 | 79,310 | 6.557 |
| 3.517 | 0.382 | 0.005 | 0.173 | 0.159 | 414 | 0.034 | 165.204 | 211.040 | 22.902 | 0.291 | 10.396 | 9.564 | 24,829 | 2.066 |
| 45.239 | 5.260 | 0.080 | 1.191 | 1.096 | 8,170 | 0.475 | 1,226.070 | 3,257.194 | 378.690 | 5.774 | 85.754 | 78.894 | 588,241 | 34.169 |
| 15.080 | 1.753 | 0.027 | 0.397 | 0.365 | 2,723 | 0.158 | 340.575 | 904.776 | 105.192 | 1.604 | 23.821 | 21.915 | 163,400 | 9.491 |
| 1.507 | 0.145 | 0.002 | 0.076 | 0.070 | 156 | 0.013 | 56.740 | 90.446 | 8.697 | 0.110 | 4.572 | 4.206 | 9,354 | 0.785 |
| 3.517 | 0.382 | 0.005 | 0.173 | 0.159 | 414 | 0.034 | 27.534 | 35.173 | 3.817 | 0.049 | 1.733 | 1.594 | 4,138 | 0.344 |
| 3.517 | 0.382 | 0.005 | 0.173 | 0.159 | 414 | 0.034 | 55.068 | 70.347 | 7.634 | 0.097 | 3.465 | 3.188 | 8,276 | 0.689 |
| 3.517 | 0.382 | 0.005 | 0.173 | 0.159 | 414 | 0.034 | 55.068 | 70.347 | 7.634 | 0.097 | 3.465 | 3.188 | 8,276 | 0.689 |
| 1.727 | 0.230 | 0.003 | 0.102 | 0.094 | 250 | 0.021 | 17.003 | 17.267 | 2.299 | 0.029 | 1.021 | 0.940 | 2,498 | 0.207 |
| **563.131** | **86.283** | **1.047** | **25.974** | **23.896** | **105,932** | **7.785** | **20,893.043** | **36,334.094** | **5,536.029** | **67.483** | **1,647.813** | **1,515.988** | **6,850,696** | **499.507** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 4.362 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,857 | 314.052 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.379 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.793 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.315 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 18.903 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.315 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 18.903 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.158 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 4.726 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.123 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 4.930 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.025 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.473 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.383 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 27.578 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.128 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 7.661 |
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.008 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.493 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.025 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.246 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.025 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.491 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.025 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.491 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.015 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.150 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **6.289** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,697** | **404.215** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 3.643 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,854 | 262.279 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.317 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.168 |

**Chiquita Canyon Landfill EIR**
**Construction Emissions - Proposed Project Exhaust Emissions**

| | | | | |
|---|---|---|---|---|
| Bulldozer | Rubber Tired Dozers | 1 | 2025 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2025 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2025 | lb/hr |
| Compactor | Plate Compactors | 1 | 2025 | lb/hr |
| Graders | Graders | 1 | 2025 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2025 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2025 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2025 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2025 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2025 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2025 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2025 | lb/hr |
| Forklifts | Forklifts | 1 | 2025 | lb/hr |

### *Module 9: Excavation and Construction*

Construction Period: 4/1/2029 to 9/30/2029

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2029 | lb/hr |
| Scraper | Scrapers | 1 | 2029 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2029 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2029 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2029 | lb/hr |
| Compactor | Plate Compactors | 1 | 2029 | lb/hr |
| Graders | Graders | 1 | 2029 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2029 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2029 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2029 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2029 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2029 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2029 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2029 | lb/hr |
| Forklifts | Forklifts | 1 | 2029 | lb/hr |

### *Module 10: Excavation and Construction*

Construction Period: 4/1/2033 to 9/30/2033

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2033 | lb/hr |
| Scraper | Scrapers | 1 | 2033 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2033 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2033 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2033 | lb/hr |
| Compactor | Plate Compactors | 1 | 2033 | lb/hr |
| Graders | Graders | 1 | 2033 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2033 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2033 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2033 | lb/hr |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 5.88E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.06E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.52E-03 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.016 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.012 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.005 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.032 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.011 | 7.372 |
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.003 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklifts | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total** [12] | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.550** | **277.489** |

***Module 9: Excavation and Construction***

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$CO_2$** | **$CH_4$** |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 5.88E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.06E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.52E-03 |

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Equipment Type** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$CO_2$** | **$CH_4$** | **CO** |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.364 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.032 | 16.855 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.016 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.012 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.005 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.032 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.011 | 7.372 |
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.003 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklift | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total** [12] | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.550** | **277.489** |

***Module 10: Excavation and Construction***

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$CO_2$** | **$CH_4$** |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 5.88E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Equipment Type** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$CO_2$** | **$CH_4$** | **CO** |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.364 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.032 | 16.855 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.016 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.012 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.005 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.032 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.011 | 7.372 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.131 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 3.936 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.094 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 3.763 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.216 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.320 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 23.060 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.107 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 6.406 |
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.006 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.368 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.203 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.012 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.122 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **5.240** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,694** | **337.142** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 3.643 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,854 | 262.279 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.317 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.168 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.131 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 3.936 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.094 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 3.763 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.216 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.320 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 23.060 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.107 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 6.406 |
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.006 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.368 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.203 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.012 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.122 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **5.240** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,694** | **337.142** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 3.643 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,854 | 262.279 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.317 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.168 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.131 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 3.936 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.094 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 3.763 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.216 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.320 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 23.060 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.107 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 6.406 |

**Chiquita Canyon Landfill EIR**
**Construction Emissions - Proposed Project Exhaust Emissions**

| | | | | |
|---|---|---|---|---|
| Trailer Mounted Light Plant | Generator Sets | 1 | 2033 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2033 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2033 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2033 | lb/hr |
| Forklifts | Forklifts | 1 | 2033 | lb/hr |

### *Module 11: Excavation and Construction*

Construction Period: 4/1/2037 to 9/30/2037

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2037 | lb/hr |
| Scraper | Scrapers | 1 | 2037 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2037 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2037 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2037 | lb/hr |
| Compactor | Plate Compactors | 1 | 2037 | lb/hr |
| Graders | Graders | 1 | 2037 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2037 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2037 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2037 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2037 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2037 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2037 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2037 | lb/hr |
| Forklifts | Forklifts | 1 | 2037 | lb/hr |

### *Module 12: Excavation and Construction*

Construction Period: 4/1/2041 to 9/30/2041

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2041 | lb/hr |
| Scraper | Scrapers | 1 | 2041 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2041 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2041 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2041 | lb/hr |
| Compactor | Plate Compactors | 1 | 2041 | lb/hr |
| Graders | Graders | 1 | 2041 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2041 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2041 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2041 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2041 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2041 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2041 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2041 | lb/hr |
| Forklifts | Forklifts | 1 | 2041 | lb/hr |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.06E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.52E-03 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.003 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklift | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total** [12] | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.550** | **277.489** |

### *Module 11: Excavation and Construction*

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 5.88E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.06E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.52E-03 |

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.364 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.032 | 16.855 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.016 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.012 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.005 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.032 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.011 | 7.372 |
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.003 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklift | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total** [12] | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.550** | **277.489** |

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 5.88E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.06E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.52E-03 |

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.364 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.032 | 16.855 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.016 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.012 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.005 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.032 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.011 | 7.372 |
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.003 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklift | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total** [12] | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.550** | **277.489** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.006 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.368 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.203 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.012 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.122 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **5.240** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,694** | **337.142** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 3.643 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,854 | 262.279 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.317 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.168 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.131 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 3.936 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.094 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 3.763 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.216 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.320 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 23.060 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.107 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 6.406 |
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.006 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.368 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.203 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.012 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.122 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **5.240** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,694** | **337.142** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 3.643 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,854 | 262.279 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.317 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.168 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.131 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 3.936 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.094 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 3.763 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.216 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.320 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 23.060 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.107 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 6.406 |
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.006 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.368 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.203 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.012 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.122 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **5.240** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,694** | **337.142** |

**Chiquita Canyon Landfill EIR**
**Construction Emissions - Proposed Project Exhaust Emissions**

| |
|---|
| ***Reference: Data (Equipment Type, Number, Hours of Operation, Daily Hours Used, Number of Workers) Provided by Mike Dean on 7-20-2011 to Brenda Eells via e-mail. Schedule information provided by CCL team via email from Brenda Eells/CH2M on 8/13/15 (CCL - construction operation schedule and information.msg).*** |
| [1] Unless otherwise noted, the total number of annual days equipment are used is based on data provided by CCL on 7/2011. |
| [2] The number of workers were estimated by summing the value provided by CCL for the new paved road entrance (10) and the default derived from Appendix A of the CalEEMod User's Guide, which assumes 1.25 workers per construction equipment during site preparation, grading, and paving and 0.42 worker trips per 1,000 square feet during building construction. |
| [3] It is assumed that a water truck is used every day of construction except for during paving activities. |
| [4] Equipment type, quantity, and daily hours of operation added to values provided by CCL for the construction of parking, administration building, and scale house. Values are based on default data in Table 3.2 of Appendix D of the CalEEMod User's Guide, 2011 based on the total project area (5.9 acres) and building area (0.5 acres). |
| [5] Site Preparation, Grading, and Paving duration is assumed equal to the CCL-provided durations for similar equipment. These durations are generally consistent with the CalEEMod defaults from Table 3.1 of Appendix D of the CalEEMod User's Guide, 2011 (scaled to fit a 6-month schedule). |
| [6] Berm Construction: assumed to occur simultaneously with the Demolition, Site Preparation, and Grading phases for a total of 62 days. Duration is generally consistent with the default duration in URBEMIS 2007, based on the berm area (2.7 acres). Equipment type, quantity, and daily hours of operation for the Berm Construction phase taken as the default from URBEMIS 2007, based on the berm area and a cut / fill volume of 48,811 cy. |
| [7] Assuming a truck haul capacity of 20 cy/truck, and the berm construction duration, 40 soil haul truck trips will need to occur each day during Berm Construction. It was assumed that 1 truck would make up to 5 trips per hour of operation to accomplish this task. |
| [8] Assuming activities occur sequentially, the total number of annual days equipment are used during Building Construction was assumed to be the difference between the total Entrance Construction duration and the durations of the other phases. This duration is approximately half of that derived from the CalEEMod default from Table 3.1 of Appendix D of the CalEEMod User's Guide, 2011 (scaled to fit a 6-month schedule), which is reasonable given the simple nature of these buildings. |
| [9] Two weeks to pave the new entrance road per CCL meeting on 3/29/12. Equipment type, quantity, and daily hours of operation for the Paving phase taken from Table 3.2 of Appendix D of the CalEEMod User's Guide, 2011 based on the parking area of 116,875 square feet (2.7 acres), which was estimated from Figure 2-1 as the unused land surrounding the Administration Building, plus 1 paver used for the construction entrance as per CCL. |
| [10] Typical cell construction based on Module 9; 2,965,000 cy total excavation per module. |
| [11] Entrance Construction total daily emissions and total hourly emissions are the maximum emissions given the assumed schedule (i.e., that all phases occur sequentially except for Berm Construction, which occurs simultaneously with Demolition, Site Preparation, and Grading). The total annual emissions represent the sum of all construction activities occurring within the year. |
| [12] Module Construction Total Emissions: To provide flexibility, the total hourly, total daily, and total annual emissions are calculated assuming all equipment can be used at the same time. |
| [13] Cell construction limited from 12 hours per day to 10 hours per day. Days of equipment use increased to keep total hours of equipment use consistent with estimate provided. |

**Chiquita Canyon Landfill EIR**
**Operation Emissions - Proposed Project Exhaust Emissions**

**Assumptions:**

| | | |
|---|---|---|
| Equipment for Operation During: | 2017 - 2046 | |
| Operation Schedule: | 52 | weeks/yr |
| | 6 | days/week |
| | 10 | hrs/day |

All off-road diesel equipment used for operation will meet Tier 4 Final emission standards unless otherwise indicated.

| Off-Road Equipment | 2024-2046 | | 2017 [1] | | 2018 [1] | | 2019 [1] | | 2020 [1] | | 2021 [1] | | 2022 [1] | | 2023 [1] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) |
| Scraper -CAT 636G | 2 | 5.5 | 2 | 0.8 | 2 | 1.6 | 2 | 2.4 | 2 | 3.1 | 2 | 3.9 | 2 | 4.7 | 2 | 5.5 |
| Bulldozer - CAT D8 [5], D6 [1] | 3 | 9.5 | 3 | 1.4 | 3 | 2.7 | 3 | 4.1 | 3 | 5.4 | 3 | 6.8 | 3 | 8.1 | 3 | 9.5 |
| Compactor - CAT 836G | 3 | 10 | 3 | 1.4 | 3 | 2.9 | 3 | 4.3 | 3 | 5.7 | 3 | 7.1 | 3 | 8.6 | 3 | 10 |
| Water Truck - 4,000 gal, 3 axle, 58,000 gvw [2] | 1 | 8 | 1 | 1.1 | 1 | 2.3 | 1 | 3.4 | 1 | 4.6 | 1 | 5.7 | 1 | 6.9 | 1 | 8 |
| Water Wagon - CAT 633G 10,000 gal [3] | 1 | 7 | 1 | 1.0 | 1 | 2.0 | 1 | 3.0 | 1 | 4.0 | 1 | 5.0 | 1 | 6.0 | 1 | 7 |
| Trailer Mounted Light Plant | 3 | 5 | 3 | 0.7 | 3 | 1.4 | 3 | 2.1 | 3 | 2.9 | 3 | 3.6 | 3 | 4.3 | 3 | 5 |
| Tipper | 2 | 12 | 2 | 1.7 | 2 | 3.4 | 2 | 5.1 | 2 | 6.9 | 2 | 8.6 | 2 | 10.3 | 2 | 12 |

Emission Calculations
Operation Year: 2017
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2017 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 2.34E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2017 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 2.40E-02 |
| Compactor | Plate Compactors | 1 | 2017 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2017 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.58E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2017 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.58E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2017 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 6.54E-03 |
| Tipper | Dumpers/Tenders | 1 | 2017 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.31E-04 |

Emission Calculations
Operation Year: 2018
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2018 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 2.22E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2018 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 2.28E-02 |
| Compactor | Plate Compactors | 1 | 2018 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.49E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.49E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2018 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 5.79E-03 |
| Tipper | Dumpers/Tenders | 1 | 2018 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.31E-04 |

Emission Calculations
Operation Year: 2019
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2019 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 2.10E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2019 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 2.16E-02 |
| Compactor | Plate Compactors | 1 | 2019 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2019 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.42E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2019 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.42E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2019 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 5.09E-03 |
| Tipper | Dumpers/Tenders | 1 | 2019 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.31E-04 |

Emission Calculations
Operation Year: 2020
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2020 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 2.00E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2020 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 2.07E-02 |
| Compactor | Plate Compactors | 1 | 2020 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2020 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.34E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2020 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.34E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2020 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 4.57E-03 |
| Tipper | Dumpers/Tenders | 1 | 2020 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

Emission Calculations
Operation Year: 2021
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2021 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.90E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2021 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.97E-02 |
| Compactor | Plate Compactors | 1 | 2021 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2021 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.28E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2021 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.28E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2021 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 4.11E-03 |
| Tipper | Dumpers/Tenders | 1 | 2021 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

Emission Calculations
Operation Year: 2022
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2022 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.81E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2022 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.88E-02 |
| Compactor | Plate Compactors | 1 | 2022 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2022 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.22E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2022 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.22E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2022 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.89E-03 |
| Tipper | Dumpers/Tenders | 1 | 2022 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

Emission Calculations
Operation Year: 2023
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2023 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.73E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2023 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.79E-02 |
| Compactor | Plate Compactors | 1 | 2023 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2023 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.16E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2023 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.16E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2023 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.52E-03 |
| Tipper | Dumpers/Tenders | 1 | 2023 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

Emission Calculations
Operation Year: 2024
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2024 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.65E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2024 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.71E-02 |
| Compactor | Plate Compactors | 1 | 2024 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2024 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.11E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2024 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.11E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2024 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.28E-03 |
| Tipper | Dumpers/Tenders | 1 | 2024 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

Emission Calculations
Operation Year: 2025 through 2046
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2025 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2025 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| Compactor | Plate Compactors | 1 | 2025 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2025 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2025 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2025 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.09E-03 |
| Tipper | Dumpers/Tenders | 1 | 2025 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

**Chiquita Canyon Landfill EIR**
**Operation Emissions - Proposed Project Exhaust**

**Onsite Emissions**

| | Daily Emissions (lb/day) | | | | | | | Hourly Emissions (lb/hr) | | | | | | | Annual Emissions (lb/yr) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| Scraper | 1.324 | 0.157 | 0.036 | 0.005 | 0.005 | 0.005 | 505.102 | 0.037 | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 642.857 | 0.047 | 413.196 | 48.832 | 11.269 | 1.547 | 1.503 | 1.503 | 157591.801 | 11.477 |
| Bulldozer | 2.014 | 0.238 | 0.055 | 0.011 | 0.007 | 0.007 | 1078.409 | 0.098 | 1.484 | 0.175 | 0.040 | 0.008 | 0.005 | 0.005 | 794.618 | 0.072 | 628.433 | 74.269 | 17.139 | 3.303 | 2.285 | 2.285 | 336463.761 | 30.489 |
| Compactor | 0.133 | 0.089 | 0.004 | 0.000 | 0.000 | 0.000 | 18.488 | 0.002 | 0.093 | 0.063 | 0.003 | 0.000 | 0.000 | 0.000 | 12.941 | 0.001 | 41.577 | 27.887 | 1.217 | 0.090 | 0.081 | 0.081 | 5768.172 | 0.606 |
| Water Truck | 0.843 | 0.100 | 0.023 | 0.003 | 0.003 | 0.003 | 311.239 | 0.018 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.016 | 262.874 | 31.067 | 7.169 | 0.953 | 0.956 | 0.956 | 97108.489 | 5.641 |
| Water Truck | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.016 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.016 | 230.015 | 27.184 | 6.273 | 0.834 | 0.836 | 0.836 | 84968.178 | 4.936 |
| Trailer Mounted Light Plant | 1.087 | 0.076 | 0.018 | 0.002 | 0.002 | 0.002 | 167.034 | 0.014 | 1.521 | 0.107 | 0.025 | 0.003 | 0.003 | 0.003 | 233.848 | 0.020 | 338.996 | 23.821 | 5.497 | 0.611 | 0.733 | 0.733 | 52114.760 | 4.372 |
| Tipper | 0.189 | 0.126 | 0.006 | 0.000 | 0.000 | 0.000 | 26.141 | 0.003 | 0.110 | 0.074 | 0.003 | 0.000 | 0.000 | 0.000 | 15.249 | 0.002 | 58.708 | 39.431 | 1.721 | 0.103 | 0.115 | 0.115 | 8155.926 | 0.801 |
| Total | 6.327 | 0.873 | 0.161 | 0.024 | 0.021 | 0.021 | 2378.747 | 0.187 | 6.368 | 0.792 | 0.157 | 0.023 | 0.021 | 0.021 | 2244.181 | 0.173 | 1973.879 | 272.492 | 50.285 | 7.441 | 6.509 | 6.509 | 742169.066 | 58.411 |

**Onsite Emissions**

| | Daily Emissions (lb/day) | | | | | | | Hourly Emissions (lb/hr) | | | | | | | Annual Emissions (lb/yr) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| Scraper | 2.349 | 0.278 | 0.064 | 0.010 | 0.010 | 0.010 | 1010.204 | 0.078 | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 642.857 | 0.047 | 737.392 | 87.405 | 22.538 | 3.094 | 3.005 | 3.005 | 315185.585 | 21.786 |
| Bulldozer | 4.029 | 0.476 | 0.110 | 0.021 | 0.015 | 0.015 | 2156.819 | 0.186 | 1.484 | 0.175 | 0.040 | 0.008 | 0.005 | 0.005 | 794.618 | 0.069 | 1258.866 | 148.539 | 34.278 | 6.605 | 4.570 | 4.570 | 672927.607 | 58.011 |
| Compactor | 0.267 | 0.179 | 0.008 | 0.001 | 0.001 | 0.001 | 36.975 | 0.004 | 0.093 | 0.063 | 0.003 | 0.000 | 0.000 | 0.000 | 12.941 | 0.001 | 83.154 | 55.774 | 2.434 | 0.180 | 0.162 | 0.162 | 11536.344 | 1.212 |
| Water Truck | 1.685 | 0.199 | 0.045 | 0.006 | 0.006 | 0.006 | 622.477 | 0.034 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.015 | 525.748 | 62.134 | 14.339 | 1.906 | 1.912 | 1.912 | 194212.845 | 10.657 |
| Water Truck | 1.474 | 0.174 | 0.040 | 0.005 | 0.005 | 0.005 | 544.668 | 0.030 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.015 | 460.029 | 54.367 | 12.546 | 1.668 | 1.673 | 1.673 | 169935.327 | 9.325 |
| Trailer Mounted Light Plant | 2.173 | 0.153 | 0.035 | 0.004 | 0.005 | 0.005 | 334.069 | 0.028 | 1.521 | 0.107 | 0.025 | 0.003 | 0.003 | 0.003 | 233.848 | 0.019 | 677.993 | 47.643 | 10.994 | 1.223 | 1.466 | 1.466 | 104229.508 | 8.742 |
| Tipper | 0.377 | 0.253 | 0.011 | 0.001 | 0.001 | 0.001 | 52.282 | 0.006 | 0.110 | 0.074 | 0.003 | 0.000 | 0.000 | 0.000 | 15.249 | 0.002 | 117.576 | 78.862 | 3.441 | 0.207 | 0.229 | 0.229 | 16311.854 | 1.779 |
| Total | 12.853 | 1.747 | 0.322 | 0.048 | 0.042 | 0.042 | 4757.494 | 0.354 | 6.368 | 0.792 | 0.157 | 0.023 | 0.021 | 0.021 | 2244.181 | 0.163 | 3947.759 | 544.983 | 100.570 | 14.882 | 13.018 | 13.018 | 1484338.170 | 110.475 |

**Onsite Emissions**

| | Daily Emissions (lb/day) | | | | | | | Hourly Emissions (lb/hr) | | | | | | | Annual Emissions (lb/yr) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| Scraper | 3.973 | 0.470 | 0.108 | 0.015 | 0.014 | 0.014 | 1515.305 | 0.099 | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 642.857 | 0.042 | 1239.589 | 146.497 | 33.807 | 4.640 | 4.508 | 4.508 | 472775.310 | 30.926 |
| Bulldozer | 6.043 | 0.714 | 1.803 | 0.032 | 0.022 | 0.022 | 3229.229 | 0.265 | 1.484 | 0.175 | 0.040 | 0.008 | 0.005 | 0.005 | 794.618 | 0.069 | 1885.299 | 222.808 | 51.417 | 9.908 | 6.856 | 6.856 | 1009391.427 | 82.766 |
| Compactor | 0.400 | 0.268 | 0.012 | 0.001 | 0.001 | 0.001 | 55.463 | 0.006 | 0.093 | 0.063 | 0.003 | 0.000 | 0.000 | 0.000 | 12.941 | 0.001 | 124.731 | 83.661 | 3.651 | 0.269 | 0.243 | 0.243 | 17304.516 | 1.818 |
| Water Truck | 2.528 | 0.299 | 0.069 | 0.009 | 0.009 | 0.009 | 933.716 | 0.049 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.014 | 788.622 | 93.201 | 21.508 | 2.859 | 2.868 | 2.868 | 291313.338 | 15.137 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817.001 | 0.042 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.014 | 690.044 | 81.551 | 18.819 | 2.502 | 2.509 | 2.509 | 254904.445 | 13.244 |
| Trailer Mounted Light Plant | 3.260 | 0.229 | 0.053 | 0.006 | 0.007 | 0.007 | 501.104 | 0.042 | 1.521 | 0.107 | 0.025 | 0.003 | 0.003 | 0.003 | 233.848 | 0.020 | 1016.989 | 71.464 | 16.492 | 1.834 | 2.199 | 2.199 | 156334.693 | 13.115 |
| Tipper | 0.565 | 0.379 | 0.017 | 0.001 | 0.001 | 0.001 | 78.422 | 0.009 | 0.110 | 0.074 | 0.003 | 0.000 | 0.000 | 0.000 | 15.249 | 0.002 | 176.364 | 118.293 | 5.162 | 0.310 | 0.344 | 0.344 | 24487.795 | 2.668 |
| Total | 18.980 | 2.620 | 0.484 | 0.072 | 0.063 | 0.063 | 7136.241 | 0.502 | 6.368 | 0.792 | 0.157 | 0.023 | 0.021 | 0.021 | 2244.181 | 0.154 | 5921.638 | 817.475 | 150.856 | 22.323 | 19.527 | 19.527 | 2226507.190 | 156.771 |

**Onsite Emissions**

| | Daily Emissions (lb/day) | | | | | | | Hourly Emissions (lb/hr) | | | | | | | Annual Emissions (lb/yr) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| Scraper | 5.30E+00 | 6.26E-01 | 1.44E-01 | 1.98E-02 | 1.93E-02 | 1.93E-02 | 1.93E-02 | 1.93E-02 | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 0.006 | 0.006 | 1652.785 | 195.329 | 45.076 | 6.187 | 6.010 | 6.010 | 6.010 | 6.010 |
| Bulldozer | 8.06E+00 | 9.52E-01 | 2.20E-01 | 4.23E-02 | 2.93E-02 | 2.93E-02 | 2.93E-02 | 2.93E-02 | 1.484 | 0.175 | 0.040 | 0.008 | 0.005 | 0.005 | 0.005 | 0.005 | 2513.731 | 297.077 | 68.556 | 13.210 | 9.141 | 9.141 | 9.141 | 9.141 |
| Compactor | 5.33E-01 | 3.58E-01 | 1.50E-02 | 1.15E-03 | 1.04E-03 | 1.04E-03 | 1.04E-03 | 1.04E-03 | 0.093 | 0.063 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 166.309 | 111.548 | 4.868 | 0.359 | 0.325 | 0.325 | 0.325 | 0.325 |
| Water Truck | 3.37E+00 | 3.98E-01 | 9.19E-02 | 1.22E-02 | 1.23E-02 | 1.23E-02 | 1.23E-02 | 1.23E-02 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 1051.495 | 124.268 | 28.677 | 3.813 | 3.824 | 3.824 | 3.824 | 3.824 |
| Water Truck | 2.95E+00 | 3.48E-01 | 8.04E-02 | 1.07E-02 | 1.07E-02 | 1.07E-02 | 1.07E-02 | 1.07E-02 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 920.059 | 108.734 | 25.093 | 3.336 | 3.346 | 3.346 | 3.346 | 3.346 |
| Trailer Mounted Light Plant | 4.35E+00 | 3.05E-01 | 7.05E-02 | 7.84E-03 | 9.40E-03 | 9.40E-03 | 9.40E-03 | 9.40E-03 | 1.521 | 0.107 | 0.025 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 1355.986 | 95.285 | 21.989 | 2.445 | 2.932 | 2.932 | 2.932 | 2.932 |
| Tipper | 7.54E-01 | 5.06E-01 | 2.21E-02 | 1.33E-03 | 1.47E-03 | 1.47E-03 | 1.47E-03 | 1.47E-03 | 0.110 | 0.074 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 235.153 | 157.724 | 6.883 | 0.414 | 0.459 | 0.459 | 0.459 | 0.459 |
| Total | 25.306 | 3.493 | 0.645 | 0.095 | 0.083 | 0.083 | 0.083 | 0.083 | 6.368 | 0.792 | 0.157 | 0.023 | 0.021 | 0.021 | 0.021 | 0.021 | 7895.517 | 1089.967 | 201.141 | 29.764 | 26.035 | 26.035 | 26.035 | 26.035 |

**Onsite Emissions**

| | Daily Emissions (lb/day) | | | | | | | Hourly Emissions (lb/hr) | | | | | | | Annual Emissions (lb/yr) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| Scraper | 6.622 | 0.783 | 0.181 | 0.025 | 0.024 | 0.024 | 2525.510 | 0.149 | 1.686 | 0.199 | 0.046

## Chiquita Canyon Landfill EIR

**Operation Emissions - Proposed Project Flare Emissions**

**Assumptions:**

The operating schedule is based Golder Associates 9/2016 LFG report.
The project does not include the operation of the existing two flares.
Flare emissions are based on existing source test data (CCL meeting, 3/29/12)[1]

| | | |
|---|---|---|
| Operating scenario: | 24 | hrs/ day |
| | 365 | days / yr |
| LFG Recovery [2]: | 85% | |
| Existing Flare Capacity (SCFM): | 8000 | |

| Operations Year | Landfill Gas Captured (scfm): | New Flares (scfm) [3] |
|---|---|---|
| **2017** | 5310.8 | N/A |
| **2018** | 5549.65 | N/A |
| **2019** | 5829.3 | N/A |
| **2020** | 6149.75 | N/A |
| **2021** | 6509.3 | N/A |
| **2022** | 6907.95 | N/A |
| **2023** | 7344.85 | N/A |
| **2024** | 7818.3 | N/A |
| **2025** | 8306.2 | 306.2 |
| **2026** | 8780.5 | 780.5 |
| **2027** | 9248 | 1248 |
| **2028** | 9707 | 1707 |
| **2029** | 10157.5 | 2157.5 |
| **2030** | 10599.5 | 2599.5 |
| **2031** | 11033 | 3033 |
| **2032** | 11458 | 3458 |
| **2033** | 11874.5 | 3874.5 |
| **2034** | 12282.5 | 4282.5 |
| **2035** | 12682 | 4682 |
| **2036** | 13073 | 5073 |
| **2037** | 13455.5 | 5455.5 |
| **2038** | 13829.5 | 5829.5 |
| **2039** | 14195 | 6195 |
| **2040** | 14152.5 | 6152.5 |
| **2041** | 13872 | 5872 |
| **2042** | 13600 | 5600 |
| **2043** | 13328 | 5328 |
| **2044** | 13064.5 | 5064.5 |
| **2045** | 12809.5 | 4809.5 |
| **2046** | 12554.5 | 4554.5 |

| | Emission Rates (lb/hr) | | | | | | |
|---|---|---|---|---|---|---|---|
| **Pollutant** | **CO [4]** | **$NO_x$** | **ROG (as CH4)** | **$SO_2$** | **$PM_{10}$** | **CO2 (kg/scf) [5]** | **Source Test Inlet Gas Flow Rate (dscfm) [6]** |
| **Source Test of Flare 2 [1]** | 1.38 | 1.38 | 0.278 | 1.81 | 0.14 | 0.025252 | 2,166 |
| **Permitted Limit Flare 1** | 5.6 | 3.9 | 0.92 | 2.5 | 1.4 | - | 4,000 |
| **Permitted Limit Flare 2** | 7.2 | 2.4 | 1.33 | 2.5 | 1.4 | - | 4,000 |

| | Emission Rates (lb/dscf) | | | | | |
|---|---|---|---|---|---|---|
| **Pollutant** | **CO** | **$NO_x$** | **ROG (as CH4)** | **$SO_2$** | **$PM_{10}$** | **CO2** |
| **Source Test of Flare 2** | 0.000011 | 0.000011 | 0.000002 | 0.000014 | 0.000001 | 0.055671 |

| | Hourly Emissions (lb/hr) | | | | | | | | Daily Emissions (lb/day) | | | | | | | | Annual Emissions (lb/year) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year of Operation** | **CO** | **$NO_x$** | **ROG (as CH4) [7]** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$ [8]** | **CO2** | **CH4 [7]** | **CO** | **$NO_x$** | **ROG (as CH4) [7]** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$ [8]** | **CO2** | **CH4 [7]** | **CO** | **$NO_x$** | **ROG (as CH4) [7]** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$ [8]** | **CO2** | **CH4 [7]** |
| **2017** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2018** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2019** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2020** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2021** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2022** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2023** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2024** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2025** | 0.20 | 0.20 | 0.04 | 0.26 | 0.02 | 0.02 | 1,022.79 | N/A | 4.68 | 4.68 | 0.94 | 6.14 | 0.47 | 0.47 | 24,547.04 | N/A | 1,709 | 1,709 | 344 | 2,241 | 173 | 173 | 8,959,670 | N/A |
| **2026** | 0.50 | 0.50 | 0.10 | 0.65 | 0.05 | 0.05 | 2,607.09 | N/A | 11.93 | 11.93 | 2.40 | 15.65 | 1.21 | 1.21 | 62,570.11 | N/A | 4,356 | 4,356 | 878 | 5,713 | 442 | 442 | 22,838,089 | N/A |
| **2027** | 0.80 | 0.80 | 0.16 | 1.04 | 0.08 | 0.08 | 4,168.67 | N/A | 19.08 | 19.08 | 3.84 | 25.03 | 1.94 | 1.94 | 100,048.04 | N/A | 6,965 | 6,965 | 1,403 | 9,136 | 707 | 707 | 36,517,533 | N/A |
| **2028** | 1.09 | 1.09 | 0.22 | 1.43 | 0.11 | 0.11 | 5,701.86 | N/A | 26.10 | 26.10 | 5.26 | 34.23 | 2.65 | 2.65 | 136,844.55 | N/A | 9,527 | 9,527 | 1,919 | 12,496 | 967 | 967 | 49,948,261 | N/A |
| **2029** | 1.37 | 1.37 | 0.28 | 1.80 | 0.14 | 0.14 | 7,206.65 | N/A | 32.99 | 32.99 | 6.65 | 43.27 | 3.35 | 3.35 | 172,959.65 | N/A | 12,041 | 12,041 | 2,426 | 15,793 | 1,222 | 1,222 | 63,130,271 | N/A |
| **2030** | 1.66 | 1.66 | 0.33 | 2.17 | 0.17 | 0.17 | 8,683.06 | N/A | 39.75 | 39.75 | 8.01 | 52.13 | 4.03 | 4.03 | 208,393.33 | N/A | 14,508 | 14,508 | 2,923 | 19,029 | 1,472 | 1,472 | 76,063,564 | N/A |
| **2031** | 1.93 | 1.93 | 0.39 | 2.53 | 0.20 | 0.20 | 10,131.07 | N/A | 46.38 | 46.38 | 9.34 | 60.83 | 4.70 | 4.70 | 243,145.59 | N/A | 16,928 | 16,928 | 3,410 | 22,202 | 1,717 | 1,717 | 88,748,140 | N/A |
| **2032** | 2.20 | 2.20 | 0.44 | 2.89 | 0.22 | 0.22 | 11,550.68 | N/A | 52.88 | 52.88 | 10.65 | 69.35 | 5.36 | 5.36 | 277,216.44 | N/A | 19,300 | 19,300 | 3,888 | 25,313 | 1,958 | 1,958 | 101,183,999 | N/A |
| **2033** | 2.47 | 2.47 | 0.50 | 3.24 | 0.25 | 0.25 | 12,941.91 | N/A | 59.24 | 59.24 | 11.93 | 77.70 | 6.01 | 6.01 | 310,605.86 | N/A | 21,624 | 21,624 | 4,356 | 28,362 | 2,194 | 2,194 | 113,371,140 | N/A |
| **2034** | 2.73 | 2.73 | 0.55 | 3.58 | 0.28 | 0.28 | 14,304.74 | N/A | 65.48 | 65.48 | 13.19 | 85.89 | 6.64 | 6.64 | 343,313.88 | N/A | 23,901 | 23,901 | 4,815 | 31,349 | 2,425 | 2,425 | 125,309,565 | N/A |
| **2035** | 2.98 | 2.98 | 0.60 | 3.91 | 0.30 | 0.30 | 15,639.19 | N/A | 71.59 | 71.59 | 14.42 | 93.90 | 7.26 | 7.26 | 375,340.47 | N/A | 26,131 | 26,131 | 5,264 | 34,273 | 2,651 | 2,651 | 136,999,272 | N/A |
| **2036** | 3.23 | 3.23 | 0.65 | 4.24 | 0.33 | 0.33 | 16,945.24 | N/A | 77.57 | 77.57 | 15.63 | 101.74 | 7.87 | 7.87 | 406,685.65 | N/A | 28,313 | 28,313 | 5,704 | 37,135 | 2,872 | 2,872 | 148,440,262 | N/A |
| **2037** | 3.48 | 3.48 | 0.70 | 4.56 | 0.35 | 0.35 | 18,222.89 | N/A | 83.42 | 83.42 | 16.80 | 109.41 | 8.46 | 8.46 | 437,349.41 | N/A | 30,448 | 30,448 | 6,134 | 39,935 | 3,089 | 3,089 | 159,632,535 | N/A |
| **2038** | 3.71 | 3.71 | 0.75 | 4.87 | 0.38 | 0.38 | 19,472.16 | N/A | 89.14 | 89.14 | 17.96 | 116.91 | 9.04 | 9.04 | 467,331.76 | N/A | 32,535 | 32,535 | 6,554 | 42,673 | 3,301 | 3,301 | 170,576,091 | N/A |
| **2039** | 3.95 | 3.95 | 0.80 | 5.18 | 0.40 | 0.40 | 20,693.03 | N/A | 94.73 | 94.73 | 19.08 | 124.24 | 9.61 | 9.61 | 496,632.68 | N/A | 34,575 | 34,575 | 6,965 | 45,349 | 3,508 | 3,508 | 181,270,929 | N/A |
| **2040** | 3.92 | 3.92 | 0.79 | 5.14 | 0.40 | 0.40 | 20,551.07 | N/A | 94.08 | 94.08 | 18.95 | 123.39 | 9.54 | 9.54 | 493,225.60 | N/A | 34,338 | 34,338 | 6,917 | 45,038 | 3,484 | 3,484 | 180,027,343 | N/A |
| **2041** | 3.74 | 3.74 | 0.75 | 4.91 | 0.38 | 0.38 | 19,614.12 | N/A | 89.79 | 89.79 | 18.09 | 117.77 | 9.11 | 9.11 | 470,738.84 | N/A | 32,773 | 32,773 | 6,602 | 42,984 | 3,325 | 3,325 | 171,819,676 | N/A |
| **2042** | 3.57 | 3.57 | 0.72 | 4.68 | 0.36 | 0.36 | 18,705.56 | N/A | 85.63 | 85.63 | 17.25 | 112.31 | 8.69 | 8.69 | 448,933.50 | N/A | 31,255 | 31,255 | 6,296 | 40,993 | 3,171 | 3,171 | 163,860,727 | N/A |
| **2043** | 3.39 | 3.39 | 0.68 | 4.45 | 0.34 | 0.34 | 17,797.01 | N/A | 81.47 | 81.47 | 16.41 | 106.86 | 8.27 | 8.27 | 427,128.16 | N/A | 29,736 | 29,736 | 5,990 | 39,002 | 3,017 | 3,017 | 155,901,777 | N/A |
| **2044** | 3.23 | 3.23 | 0.65 | 4.23 | 0.33 | 0.33 | 16,916.84 | N/A | 77.44 | 77.44 | 15.60 | 101.57 | 7.86 | 7.86 | 406,004.23 | N/A | 28,266 | 28,266 | 5,694 | 37,073 | 2,868 | 2,868 | 148,191,545 | N/A |
| **2045** | 3.06 | 3.06 | 0.62 | 4.02 | 0.31 | 0.31 | 16,065.07 | N/A | 73.54 | 73.54 | 14.81 | 96.46 | 7.46 | 7.46 | 385,561.73 | N/A | 26,843 | 26,843 | 5,407 | 35,207 | 2,723 | 2,723 | 140,730,030 | N/A |
| **2046** | 2.90 | 2.90 | 0.58 | 3.81 | 0.29 | 0.29 | 15,213.30 | N/A | 69.64 | 69.64 | 14.03 | 91.34 | 7.07 | 7.07 | 365,119.22 | N/A | 25,419 | 25,419 | 5,121 | 33,340 | 2,579 | 2,579 | 133,268,514 | N/A |
| **Total** | 56.11 | 56.11 | 11.30 | 73.59 | 5.69 | 5.69 | 294,153.99 | N/A | 1,346.55 | 1,346.55 | 271.26 | 1,766.13 | 136.61 | 136.61 | 7,059,695.71 | N/A | 491,492.32 | 491,492.32 | 99,010.77 | 644,638.48 | 49,861.54 | 49,861.54 | 2,576,788,934.76 | N/A |

Conversion:

| | |
|---|---|
| lb/kg conversion: | 2.20 |
| min/yr: | 525600 |
| cu.ft./lb-mol (@ 14.696 psia and 60 oF) | 379.49 |
| MW CO2 (lb/lb-mol) | 44 |
| MW CH4 (lb/lb-mol) | 16 |

[1] Reference: Source test report Horizon Air Measurement Services, INC Test # C33-013-FR, Report February 16, 2012. CCL Compliance Test on Landfill Gas Flare #2. Prepared for the SCAQMD. Initial test 1/5/2012, re-test for PM only on 2/2/12. The final values are included as representative.

[2] LFG recovery would be 85% with BMPs, as described in the SCS Memorandum dated November 2016 (SCS, 2016a).

[3] Years with N/A yield less landfill gas to the flares than is already permitted, therefore, no new flare is needed.

[4] CO emissions were measured as 0.6 lb/hr. However this is less than 20% of the full scale of the analyzer. A low scale calibration gas (10% or 1.38 lb/hr) of range was used to verify the low level emissions. Therefore, the 1.38 lb/hr is used since the measured value was below the analyzer minimum acceptable range.

[5] $CO_2$ Flare emissions based on The Climate Registry General Reporting Protocol: 2015 Climate Registry Default Emission Factors, April 2015 (EF=0.025252 kg/scf) and Golder Associates 11/15 LFG report (LFG flow rate)

[6] Source Test Inlet Gas Flow Rate was reported as 2,167 dscfm in Table 2-1 of the source test report but as 2,166 dscfm in Table 5-1 of the source test report. Value listed as 2,166 dscfm here to be consistent with values used to estimate toxic emissions.

[7] Total Non-Methane Hydrocarbons (ROG) measured as methane equivalent per source test report: Horizon Air Measurement Services, INC Test # C33-013-FR, Report February 16, 2012. No methane emitted in flare exhaust gas.

[8] $PM_{2.5}$ equals 100% of $PM_{10}$ for flares burning gaseous fuel per Appendix A, Table A of the SCAQMD Final –Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, October 2006.

## Chiquita Canyon Landfill EIR

**Construction Emissions - Proposed Project Fugitive Emissions From Activities**

**Project Data** [1]

| | | |
|---|---|---|
| Expansion Landfill Footprint | 142.7 | acres |
| Average Module Footprint | 20 | acres |
| New Entrance and Road | 30 | acres |
| | | |
| *Construction Activity* | *Per Module* | *For Entrance* |
| Total Excavation [2] (cy) | 2,965,000 | 360,000 |
| Excavation Schedule (days) | 60 | 30 |
| Grading Schedule (days) | 72 | 12 |
| Paving [3] (acres) | 0 | 11 |
| Paving Schedule (days) | NA | 10 |
| Berm - Onsite Cut / Fill ($ft^3$) [4] | NA | 1,317,911 |
| Berm Schedule [5] (days) | NA | 62 |

**General Assumptions**

| Construction Schedule | Operational Schedule | |
|---|---|---|
| 10 | 10 | hrs / day |
| 5 | 6 | days / week |
| 4 | (52 weeks / yr) | weeks / month |

**Emission Factors**

| Activity | Fugitive $PM_{10}$ EF | Fugitive $PM_{2.5}$ EF [6] | Unit |
|---|---|---|---|
| Excavation [7] | 0.00042 | 0.00009 | lb/$ft^3$/day |
| Grading [7] | 26.4 | 5.5 | lb/acre/day |
| Onsite Cut / Fill [8] | 0.059 | 0.012 | ton/1,000 cy |
| | **ROG EF** | **Unit** | |
| Paving [9] | 2.62 | lb ROG / acre | |

Conversion: $ft^3$/cy 27

**Control Measures**

| Measure | Control Efficiency | Applicable Source | Reference |
|---|---|---|---|
| Apply water every 3 hours to distrubed areas within construction site. | 75.00% | Excavation / Grading | Sacramento Metropolitan Air Quality Management District (SMAQMD). 2015. CEQA Guide. June. |
| Total Control Efficiency | 75.00% | Excavation / Grading | |

***Entrance Construction*** [10]

| Construction Period (months) | Duration (days) | YR |
|---|---|---|
| 6 | 120 | 2018 |

| | | Fugitive Particulate Emissions | | | | | | ROG Emissions | | | Controlled Emissions: Fugitive Particulate Emissions | | | | | | Controlled Emissions: ROG Emissions | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (lb/day) | | (lb/hr) | | (lb/yr) [11] | | (lb/day) | (lb/hr) | (lb/yr) [11] | (lb/day) | | (lb/hr) | | (lb/yr) [11] | | (lb/day) | (lb/hr) | (lb/yr) |
| Activity | Max. Activity per day | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | ROG | ROG | ROG | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | ROG | ROG | ROG |
| Grading (acres/day) [12] | 7.5 | 198.00 | 41.18 | 19.80 | 4.12 | 2,161.18 | 449.53 | NA | NA | NA | 49.50 | 10.30 | 4.95 | 1.03 | 540.30 | 112.38 | NA | NA | NA |
| Excavation (cy/day) | 12,000 | 136.08 | 28.30 | 13.61 | 2.83 | 3,713.31 | 772.37 | NA | NA | NA | 34.02 | 7.08 | 3.40 | 0.71 | 928.33 | 193.09 | NA | NA | NA |
| Paving [7] (acres/day) | 1.1 | NA | NA | NA | NA | NA | NA | 2.88 | 0.29 | 26.21 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Berm - Onsite Cut / Fill ($ft^3$/day) | 21,257 | 92.90 | 19.32 | 9.29 | 1.93 | 5,239.01 | 1,089.71 | NA | NA | NA | 23.22 | 4.83 | 2.32 | 0.48 | 1,309.75 | 272.43 | NA | NA | NA |
| **Total** [13] | | **290.90** | **60.51** | **29.09** | **6.05** | **11,113.50** | **2,311.61** | **2.88** | **0.29** | **26.21** | **72.72** | **15.13** | **7.27** | **1.51** | **2,778.38** | **577.90** | **N/A** | **N/A** | **N/A** |

***Module Construction*** [10]

| Construction Period (months) | Duration (days) | YR | |
|---|---|---|---|
| 6 | 120 | 2017-2041 | Emissions are the same for each yr of module construction. |

| | | Fugitive Particulate Emissions | | | | | | Controlled Emissions: Fugitive Particulate Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (lb/day) | | (lb/hr) | | (lb/yr) [11] | | (lb/day) | | (lb/hr) | | (lb/yr) [11] | |
| Activity | Max. Activity per day | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ |
| Grading (acres/day) [12] | 5 | 132.00 | 27.46 | 13.20 | 2.75 | 8,644.73 | 1,798.10 | 33.00 | 6.86 | 3.30 | 0.69 | 2,161.18 | 449.53 |
| Excavation (cy/day) | 50,000 | 567.00 | 117.94 | 56.70 | 11.79 | 30,944.22 | 6,436.40 | 141.75 | 29.48 | 14.18 | 2.95 | 7,736.05 | 1,609.10 |
| **Total** [14, 15] | | **699.00** | **145.39** | **69.90** | **14.54** | **39,588.95** | **8,234.50** | **174.75** | **36.35** | **17.48** | **3.63** | **9,897.24** | **2,058.63** |

***Module Operation*** [10]

| YR | Annual Duration (days) | |
|---|---|---|
| 2018-2046 | 312 | Emissions are the same for each yr of operation and are for all modules. |

| | | Fugitive Particulate Emissions | | | | | | Controlled Emissions: Fugitive Particulate Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (lb/day) | | (lb/hr) | | (lb/yr) [11] | | (lb/day) | | (lb/hr) | | (lb/yr) [11] | |
| Activity | Assumed Max. Activity | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ |
| Grading (acres/day) | 2.3 | 60.72 | 12.63 | 6.07 | 1.26 | 17,231.84 | 3,584.22 | 15.18 | 3.16 | 1.52 | 0.32 | 4,307.96 | 896.06 |
| Excavation (cy/day) | 730 | 8.28 | 1.72 | 0.83 | 0.17 | 2,349.29 | 488.65 | 2.07 | 0.43 | 0.21 | 0.04 | 587.32 | 122.16 |
| **Total** | | **69.00** | **14.35** | **6.90** | **1.44** | **19,581.12** | **4,072.87** | **17.25** | **3.59** | **1.72** | **0.36** | **4,895.28** | **1,018.22** |

[1] Unless otherwise noted data provided in the Assumptions tab and are based on project specific inputs.

[2] Typical module size based on Module 9 as per data provided by CCL July 2011. Data provided for entrance construction is 12,000 cy/day.

[3] Total area to be paved includes approximately 8 acres for road and 3 acres for new parking area as per assumptions sheet.

[4] Volume of cut / fill for the Berm Construction taken from design drawings (ccl_berm-calcs-r01.pdf).

[5] The Berm schedule was taken as described on the Construction PP - Exhaust tab.

[6] Source: SCAQMD Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology, October 2006. For construction fugitive dust sources, it is assumed that 20.8% of the $PM_{10}$ would be $PM_{2.5}$. For paved and unpaved road fugitive dust sources, it is assumed that 16.9% and 21.2% of the $PM_{10}$ would be $PM_{2.5}$, respectively.

[7] Source: SCAQMD CEQA Air Quality Handbook, November 1993. Table 9-9, assumed soil density of 1.8 ton/$yd^3$.

[8] Source: Table 3-2 of the WRAP Fugitive Dust Handbook (Countess Environmental, 2006), which is consistent with the approach used by URBEMIS2007, the previously ARB-approved emission calculation estimator.

[9] Source: Section 4.8 of Appendix A of the CalEEMod User's Guide, 2011.

[10] Fugitive Emissions are based on maximum amount of earth disturbed. Emission factors are independent of operating year. Maximum daily activity data provided by CCL, July 2011.

[11] Fugitive dust emissions assumed not to occur on days in which precipitation would be >0.1 inches. Average Los Angeles - South Coast precipitation conditions (33 days/year) were taken from CalEEMod Appendix D, Table 1.1.

[12] Using the assumptions in Appendix A of the Software User's Guide: URBEMIS2007 for Windows (JSA, 2007), up to 25% of the total graded area could be disturbed on the worst-case day.

[13] The Total Daily and Total Hourly emissions are the maximum emissions given the assumed schedule (i.e., that Grading and Excavation activities do not occur simultaneously and that Berm activities may overlap with Grading and/or Excavation activities). The Total Annual emissions represent the sum of all construction activities occurring within the year.

[14] It is assumed that the construction phases excavation and grading could occur simultaneously for the module construction as consistent with the exhaust construction tab.

[15] Totals for Module Construction represent total emissions from construction of one Module since one module is constructed per year.

**Chiquita Canyon Landfill EIR**

**Operation Emissions - Proposed Project Flare and LFG Toxic Emissions**

**Assumptions:**

Flare and LFG emissions are based on existing source test data from 1/5/12 (CCL meeting, 3/29/12)
Gas flow rate data provided by Golder Associates (9/2016) using EPA's LandGEM Model version 3.02 (Attachment 1 Results table).
Annual LFG recovery rate would be 85% with BMPs, as described in the SCS Memorandum dated November 2016 (SCS, 2016a).
Emissions for the new flares would be the same as the existing flares.

| Year | Landfill Gas Generation (scfm) | Landfill Gas Captured (scfm) | New Flares (scfm) | Total Fugitive Landfill Gas (scfm) |
|---|---|---|---|---|
| 2029 | 11950 | 10157.5 | 2157.5 | 1792.5 |
| 2030 | 12470 | 10599.5 | 2599.5 | 1870.5 |
| 2031 | 12980 | 11033 | 3033 | 1947 |
| 2032 | 13480 | 11458 | 3458 | 2022 |
| 2033 | 13970 | 11874.5 | 3874.5 | 2095.5 |
| 2034 | 14450 | 12282.5 | 4282.5 | 2167.5 |
| 2035 | 14920 | 12682 | 4682 | 2238 |
| 2036 | 15380 | 13073 | 5073 | 2307 |
| 2037 | 15830 | 13455.5 | 5455.5 | 2374.5 |
| 2038 | 16270 | 13829.5 | 5829.5 | 2440.5 |
| 2039 | 16700 | 14195 | 6195 | 2505 |
| 2040 | 16650 | 14152.5 | 6152.5 | 2497.5 |
| 2041 | 16320 | 13872 | 5872 | 2448 |
| 2042 | 16000 | 13600 | 5600 | 2400 |
| 2043 | 15680 | 13328 | 5328 | 2352 |
| 2044 | 15370 | 13064.5 | 5064.5 | 2305.5 |
| 2045 | 15070 | 12809.5 | 4809.5 | 2260.5 |
| 2046 | 14770 | 12554.5 | 4554.5 | 2215.5 |
| 2047 | 14480 | 12308 | 4308 | 2172 |
| 2048 | 14190 | 12061.5 | 4061.5 | 2128.5 |
| 2049 | 13910 | 11823.5 | 3823.5 | 2086.5 |
| 2050 | 13630 | 11585.5 | 3585.5 | 2044.5 |
| 2051 | 13360 | 11356 | 3356 | 2004 |
| 2052 | 13100 | 11135 | 3135 | 1965 |
| 2053 | 12840 | 10914 | 2914 | 1926 |
| 2054 | 12590 | 10701.5 | 2701.5 | 1888.5 |
| 2055 | 12340 | 10489 | 2489 | 1851 |
| 2056 | 12090 | 10276.5 | 2276.5 | 1813.5 |
| 2057 | 11850 | 10072.5 | 2072.5 | 1777.5 |
| 2058 | 11620 | 9877 | 1877 | 1743 |

Existing Flare Capacity (SCFM): 8000

LFG Recovery Rate 85%

Fugitive LFG Emission Rate 15%

| | Source Test Data[1] | | | | | | Average Flare | Average Landfill | MW |
|---|---|---|---|---|---|---|---|---|---|
| | Run 1 | | Run 2 | | Run 3 | | | | |
| | LFG-inlet | Flare outlet | LFG-inlet | Flare outlet | LFG-inlet | Flare outlet | | | |
| | ppb | ppb | ppb | ppb | ppb | ppb | ppb | ppb | g/g-mole |
| Hydrogen sulfide[2] | 64400 | 100 | 64400 | 100 | 64400 | 100 | 100 | 64400 | 34.08 |
| Benzene[2] | 3250 | 0.4 | 3250 | 0.4 | 3250 | 0.4 | 0.4 | 3250 | 78.11 |
| Benzylchloride[2] | 190 | 0.75 | 190 | 0.75 | 190 | 0.75 | 0.75 | 190 | 126.58 |
| Chlorobenzene[2] | 160 | 0.5 | 160 | 0.5 | 160 | 0.5 | 0.5 | 160 | 112.56 |
| Dichlorobenzene[2] | 604 | 1 | 604 | 1 | 604 | 1 | 1 | 604 | 147 |
| 31,1-Dichloroethane[2] | 160 | 0.5 | 160 | 0.5 | 160 | 0.5 | 0.5 | 160 | 98.97 |
| 1,2-Dichloroethane[2] | 402 | 0.5 | 402 | 0.5 | 402 | 0.5 | 0.5 | 402 | 98.96 |
| 1,1-Dichloroethylene[2] | 160 | 0.5 | 160 | 0.5 | 160 | 0.5 | 0.5 | 160 | 96.94 |
| Dichloromethane[2] | 648 | 0.5 | 648 | 1.2 | 648 | 1.5 | 1.1 | 648 | 84.94 |
| 1,2-dibromoethane[2] | 160 | 0.5 | 160 | 0.5 | 160 | 0.5 | 0.5 | 160 | 187.86 |
| Perchloroethene[2] | 553 | 0.4 | 553 | 0.4 | 553 | 0.4 | 0.4 | 553 | 165.83 |
| Carbon tetrachloride[2] | 140 | 0.4 | 140 | 0.4 | 140 | 0.4 | 0.4 | 140 | 153.82 |
| Toluene[2] | 26200 | 0.5 | 26200 | 2.48 | 26200 | 2.83 | 1.9 | 26200 | 92.13 |
| 1,1,1-trichloroethane[2] | 140 | 0.4 | 140 | 0.4 | 140 | 0.4 | 0.4 | 140 | 133.4 |
| Trichloroethene[2] | 140 | 0.4 | 140 | 0.4 | 140 | 0.4 | 0.4 | 140 | 131.4 |
| Chloroform[2] | 140 | 0.4 | 140 | 0.4 | 140 | 0.4 | 0.4 | 140 | 119.38 |
| Vinyl chloride[2] | 140 | 0.5 | 140 | 0.5 | 140 | 0.5 | 0.5 | 140 | 62.5 |
| m-Xylene[2] | 12600 | 0.5 | 12600 | 0.5 | 12600 | 0.5 | 0.5 | 12600 | 106.16 |
| o+p-Xylene[2] | 3630 | 0.5 | 3630 | 0.5 | 3630 | 0.5 | 0.5 | 3630 | 106.16 |
| Total Non-methane HC[3] | 7926000 | 3524 | 7926000 | 3524 | 7926000 | 3524 | 3524 | 7926000 | 16.04 |

| 2029 | | 2030 | | 2031 | | 2032 | | 2033 | | 2034 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG |
| 2.77E-05 | 7.59E-02 | 3.34E-05 | 7.92E-02 | 3.90E-05 | 8.25E-02 | 4.44E-05 | 8.56E-02 | 4.98E-05 | 8.88E-02 | 5.50E-05 | 9.18E-02 |
| 2.54E-07 | 8.78E-03 | 3.06E-07 | 9.16E-03 | 3.57E-07 | 9.54E-03 | 4.07E-07 | 9.91E-03 | 4.56E-07 | 1.03E-02 | 5.04E-07 | 1.06E-02 |
| 7.72E-07 | 8.32E-04 | 9.30E-07 | 8.68E-04 | 1.09E-06 | 9.04E-04 | 1.24E-06 | 9.39E-04 | 1.39E-06 | 9.73E-04 | 1.53E-06 | 1.01E-03 |
| 4.58E-07 | 6.23E-04 | 5.52E-07 | 6.50E-04 | 6.44E-07 | 6.77E-04 | 7.34E-07 | 7.03E-04 | 8.22E-07 | 7.28E-04 | 9.09E-07 | 7.53E-04 |
| 1.20E-06 | 3.07E-03 | 1.44E-06 | 3.21E-03 | 1.68E-06 | 3.34E-03 | 1.92E-06 | 3.46E-03 | 2.15E-06 | 3.59E-03 | 2.37E-06 | 3.71E-03 |
| 4.02E-07 | 5.48E-04 | 4.85E-07 | 5.72E-04 | 5.66E-07 | 5.95E-04 | 6.45E-07 | 6.18E-04 | 7.23E-07 | 6.40E-04 | 7.99E-07 | 6.62E-04 |
| 4.02E-07 | 1.38E-03 | 4.85E-07 | 1.44E-03 | 5.66E-07 | 1.49E-03 | 6.45E-07 | 1.55E-03 | 7.23E-07 | 1.61E-03 | 7.99E-07 | 1.66E-03 |
| 3.94E-07 | 5.37E-04 | 4.75E-07 | 5.60E-04 | 5.54E-07 | 5.83E-04 | 6.32E-07 | 6.05E-04 | 7.08E-07 | 6.27E-04 | 7.83E-07 | 6.49E-04 |
| 7.37E-07 | 1.90E-03 | 8.88E-07 | 1.99E-03 | 1.04E-06 | 2.07E-03 | 1.18E-06 | 2.15E-03 | 1.32E-06 | 2.23E-03 | 1.46E-06 | 2.30E-03 |
| 7.64E-07 | 1.04E-03 | 9.20E-07 | 1.09E-03 | 1.07E-06 | 1.13E-03 | 1.22E-06 | 1.17E-03 | 1.37E-06 | 1.22E-03 | 1.52E-06 | 1.26E-03 |
| 5.40E-07 | 3.17E-03 | 6.50E-07 | 3.31E-03 | 7.58E-07 | 3.45E-03 | 8.65E-07 | 3.58E-03 | 9.69E-07 | 3.71E-03 | 1.07E-06 | 3.84E-03 |
| 5.00E-07 | 7.45E-04 | 6.03E-07 | 7.77E-04 | 7.04E-07 | 8.09E-04 | 8.02E-07 | 8.40E-04 | 8.99E-07 | 8.71E-04 | 9.93E-07 | 9.01E-04 |
| 1.45E-06 | 8.35E-02 | 1.75E-06 | 8.71E-02 | 2.04E-06 | 9.07E-02 | 2.33E-06 | 9.42E-02 | 2.61E-06 | 9.76E-02 | 2.88E-06 | 1.01E-01 |
| 4.34E-07 | 6.46E-04 | 5.23E-07 | 6.74E-04 | 6.10E-07 | 7.02E-04 | 6.96E-07 | 7.29E-04 | 7.79E-07 | 7.55E-04 | 8.61E-07 | 7.81E-04 |
| 4.27E-07 | 6.36E-04 | 5.15E-07 | 6.64E-04 | 6.01E-07 | 6.91E-04 | 6.85E-07 | 7.18E-04 | 7.68E-07 | 7.44E-04 | 8.49E-07 | 7.70E-04 |
| 3.88E-07 | 5.78E-04 | 4.68E-07 | 6.03E-04 | 5.46E-07 | 6.28E-04 | 6.23E-07 | 6.52E-04 | 6.97E-07 | 6.76E-04 | 7.71E-07 | 6.99E-04 |
| 2.54E-07 | 3.03E-04 | 3.06E-07 | 3.16E-04 | 3.57E-07 | 3.29E-04 | 4.07E-07 | 3.41E-04 | 4.56E-07 | 3.54E-04 | 5.05E-07 | 3.66E-04 |
| 4.32E-07 | 4.63E-02 | 5.20E-07 | 4.83E-02 | 6.07E-07 | 5.03E-02 | 6.92E-07 | 5.22E-02 | 7.75E-07 | 5.41E-02 | 8.57E-07 | 5.60E-02 |
| 4.32E-07 | 1.33E-02 | 5.20E-07 | 1.39E-02 | 6.07E-07 | 1.45E-02 | 6.92E-07 | 1.50E-02 | 7.75E-07 | 1.56E-02 | 8.57E-07 | 1.61E-02 |
| 4.60E-04 | 4.40E+00 | 5.54E-04 | 4.59E+00 | 6.46E-04 | 4.78E+00 | 7.37E-04 | 4.96E+00 | 8.26E-04 | 5.14E+00 | 9.13E-04 | 5.32E+00 |

**Chiquita Canyon Landfill EIR**

**Operation Emissions - Proposed Project Flare and LFG Toxic Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Flare exhaust gas (dscfm) | | 31,185 | | 31,185 | | 31,185 | |
| LFG Flow rate (dscfm) | 2166 | | 2166 | | 2166 | | |
| Temperature (°F) | | 1500 | | 1500 | | 1500 | 1500 |
| Flare Stack Informatior | | | | | | | |

| | |
|---|---|
| D (feet) | 12 |
| H (feet) | 50 |

Stack height and diameter are confirmed based on source test report.

[1] Reference: Source test report Horizon Air Measurement Services, INC Test # C33-013-FR, Report February 16, 2012. CCL Compliance Test on Landfill Gas Flare #2. Prepared for the SCAQMD. Initial test 1/5/2012, re-test for PM only on 2/2/12.

[2] Note: All pollutant concentrations noted in the source test report as below the detection limit were assumed to equal 50% of the detection limit concentra 50%

[3] Total Non-Methane Hydrocarbons (ROG) measured as methane equivalent per source test report, so MW of methane used to represent MW of TNMHC.

Calculation:

ppmv = µl/L

MV/24.45 (L/mol)*ppb/1000 = µg

V2 = V1P1/P2*T2/T1

1 µL = 35.32 $ft^3$

g/s = ppb/24.45*Ts/T1*MW*Q/60/35.32/1000000

**Calculated Emissions**

| 2035 | | 2036 | | 2037 | | 2038 | | 2039 | | 2040 | | 2041 | | 2042 | | 2043 | | 2044 | | 2045 | | 2046 | | 2047 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG |
| 6.02E-05 | 9.48E-02 | 6.52E-05 | 9.77E-02 | 7.01E-05 | 1.01E-01 | 7.49E-05 | 1.03E-01 | 7.96E-05 | 1.06E-01 | 7.90E-05 | 1.06E-01 | 7.54E-05 | 1.04E-01 | 7.19E-05 | 1.02E-01 | 6.85E-05 | 9.96E-02 | 6.51E-05 | 9.77E-02 | 6.18E-05 | 9.58E-02 | 5.85E-05 | 9.38E-02 | 5.53E-05 | 9.20E-02 |
| 5.51E-07 | 1.10E-02 | 5.98E-07 | 1.13E-02 | 6.43E-07 | 1.16E-02 | 6.87E-07 | 1.20E-02 | 7.30E-07 | 1.23E-02 | 7.25E-07 | 1.22E-02 | 6.92E-07 | 1.20E-02 | 6.60E-07 | 1.18E-02 | 6.28E-07 | 1.15E-02 | 5.97E-07 | 1.13E-02 | 5.66E-07 | 1.11E-02 | 5.36E-07 | 1.09E-02 | 5.07E-07 | 1.06E-02 |
| 1.68E-06 | 1.04E-03 | 1.82E-06 | 1.07E-03 | 1.95E-06 | 1.10E-03 | 2.09E-06 | 1.13E-03 | 2.22E-06 | 1.16E-03 | 2.20E-06 | 1.16E-03 | 2.10E-06 | 1.14E-03 | 2.00E-06 | 1.11E-03 | 1.91E-06 | 1.09E-03 | 1.81E-06 | 1.07E-03 | 1.72E-06 | 1.05E-03 | 1.63E-06 | 1.03E-03 | 1.54E-06 | 1.01E-03 |
| 9.93E-07 | 7.78E-04 | 1.08E-06 | 8.02E-04 | 1.16E-06 | 8.25E-04 | 1.24E-06 | 8.48E-04 | 1.31E-06 | 8.71E-04 | 1.31E-06 | 8.68E-04 | 1.25E-06 | 8.51E-04 | 1.19E-06 | 8.34E-04 | 1.13E-06 | 8.18E-04 | 1.07E-06 | 8.01E-04 | 1.02E-06 | 7.86E-04 | 9.66E-07 | 7.70E-04 | 9.14E-07 | 7.55E-04 |
| 2.59E-06 | 3.83E-03 | 2.81E-06 | 3.95E-03 | 3.02E-06 | 4.07E-03 | 3.23E-06 | 4.18E-03 | 3.43E-06 | 4.29E-03 | 3.41E-06 | 4.28E-03 | 3.25E-06 | 4.19E-03 | 3.10E-06 | 4.11E-03 | 2.95E-06 | 4.03E-03 | 2.81E-06 | 3.95E-03 | 2.67E-06 | 3.87E-03 | 2.52E-06 | 3.80E-03 | 2.39E-06 | 3.72E-03 |
| 8.73E-07 | 6.84E-04 | 9.46E-07 | 7.05E-04 | 1.02E-06 | 7.26E-04 | 1.09E-06 | 7.46E-04 | 1.16E-06 | 7.66E-04 | 1.15E-06 | 7.63E-04 | 1.10E-06 | 7.48E-04 | 1.04E-06 | 7.33E-04 | 9.94E-07 | 7.19E-04 | 9.45E-07 | 7.05E-04 | 8.97E-07 | 6.91E-04 | 8.50E-07 | 6.77E-04 | 8.04E-07 | 6.64E-04 |
| 8.73E-07 | 1.72E-03 | 9.46E-07 | 1.77E-03 | 1.02E-06 | 1.82E-03 | 1.09E-06 | 1.87E-03 | 1.16E-06 | 1.92E-03 | 1.15E-06 | 1.92E-03 | 1.10E-06 | 1.88E-03 | 1.04E-06 | 1.84E-03 | 9.94E-07 | 1.81E-03 | 9.45E-07 | 1.77E-03 | 8.97E-07 | 1.74E-03 | 8.50E-07 | 1.70E-03 | 8.04E-07 | 1.67E-03 |
| 8.56E-07 | 6.70E-04 | 9.27E-07 | 6.91E-04 | 9.97E-07 | 7.11E-04 | 1.07E-06 | 7.31E-04 | 1.13E-06 | 7.50E-04 | 1.12E-06 | 7.48E-04 | 1.07E-06 | 7.33E-04 | 1.02E-06 | 7.18E-04 | 9.74E-07 | 7.04E-04 | 9.25E-07 | 6.90E-04 | 8.79E-07 | 6.77E-04 | 8.32E-07 | 6.63E-04 | 7.87E-07 | 6.50E-04 |
| 1.60E-06 | 2.38E-03 | 1.73E-06 | 2.45E-03 | 1.86E-06 | 2.52E-03 | 1.99E-06 | 2.59E-03 | 2.12E-06 | 2.66E-03 | 2.10E-06 | 2.65E-03 | 2.01E-06 | 2.60E-03 | 1.91E-06 | 2.55E-03 | 1.82E-06 | 2.50E-03 | 1.73E-06 | 2.45E-03 | 1.64E-06 | 2.40E-03 | 1.56E-06 | 2.35E-03 | 1.47E-06 | 2.31E-03 |
| 1.66E-06 | 1.30E-03 | 1.80E-06 | 1.34E-03 | 1.93E-06 | 1.38E-03 | 2.06E-06 | 1.42E-03 | 2.19E-06 | 1.45E-03 | 2.18E-06 | 1.45E-03 | 2.08E-06 | 1.42E-03 | 1.98E-06 | 1.39E-03 | 1.89E-06 | 1.36E-03 | 1.79E-06 | 1.34E-03 | 1.70E-06 | 1.31E-03 | 1.61E-06 | 1.29E-03 | 1.53E-06 | 1.26E-03 |
| 1.17E-06 | 3.96E-03 | 1.27E-06 | 4.08E-03 | 1.36E-06 | 4.20E-03 | 1.46E-06 | 4.32E-03 | 1.55E-06 | 4.43E-03 | 1.54E-06 | 4.42E-03 | 1.47E-06 | 4.33E-03 | 1.40E-06 | 4.25E-03 | 1.33E-06 | 4.16E-03 | 1.27E-06 | 4.08E-03 | 1.20E-06 | 4.00E-03 | 1.14E-06 | 3.92E-03 | 1.08E-06 | 3.84E-03 |
| 1.09E-06 | 9.30E-04 | 1.18E-06 | 9.59E-04 | 1.27E-06 | 9.87E-04 | 1.35E-06 | 1.01E-03 | 1.44E-06 | 1.04E-03 | 1.43E-06 | 1.04E-03 | 1.36E-06 | 1.02E-03 | 1.30E-06 | 9.97E-04 | 1.24E-06 | 9.78E-04 | 1.17E-06 | 9.58E-04 | 1.12E-06 | 9.39E-04 | 1.06E-06 | 9.21E-04 | 9.99E-07 | 9.03E-04 |
| 3.15E-06 | 1.04E-01 | 3.41E-06 | 1.07E-01 | 3.67E-06 | 1.11E-01 | 3.92E-06 | 1.14E-01 | 4.17E-06 | 1.17E-01 | 4.14E-06 | 1.16E-01 | 3.95E-06 | 1.14E-01 | 3.77E-06 | 1.12E-01 | 3.58E-06 | 1.10E-01 | 3.41E-06 | 1.07E-01 | 3.24E-06 | 1.05E-01 | 3.06E-06 | 1.03E-01 | 2.90E-06 | 1.01E-01 |
| 9.42E-07 | 8.07E-04 | 1.02E-06 | 8.32E-04 | 1.10E-06 | 8.56E-04 | 1.17E-06 | 8.80E-04 | 1.25E-06 | 9.03E-04 | 1.24E-06 | 9.00E-04 | 1.18E-06 | 8.82E-04 | 1.13E-06 | 8.65E-04 | 1.07E-06 | 8.48E-04 | 1.02E-06 | 8.31E-04 | 9.67E-07 | 8.15E-04 | 9.16E-07 | 7.99E-04 | 8.67E-07 | 7.83E-04 |
| 9.28E-07 | 7.95E-04 | 1.01E-06 | 8.19E-04 | 1.08E-06 | 8.43E-04 | 1.16E-06 | 8.66E-04 | 1.23E-06 | 8.89E-04 | 1.22E-06 | 8.87E-04 | 1.16E-06 | 8.69E-04 | 1.11E-06 | 8.52E-04 | 1.06E-06 | 8.35E-04 | 1.00E-06 | 8.19E-04 | 9.53E-07 | 8.03E-04 | 9.02E-07 | 7.87E-04 | 8.54E-07 | 7.71E-04 |
| 8.43E-07 | 7.22E-04 | 9.13E-07 | 7.44E-04 | 9.82E-07 | 7.66E-04 | 1.05E-06 | 7.87E-04 | 1.12E-06 | 8.08E-04 | 1.11E-06 | 8.06E-04 | 1.06E-06 | 7.90E-04 | 1.01E-06 | 7.74E-04 | 9.59E-07 | 7.59E-04 | 9.12E-07 | 7.44E-04 | 8.66E-07 | 7.29E-04 | 8.20E-07 | 7.15E-04 | 7.76E-07 | 7.01E-04 |
| 5.52E-07 | 3.78E-04 | 5.98E-07 | 3.90E-04 | 6.43E-07 | 4.01E-04 | 6.87E-07 | 4.12E-04 | 7.30E-07 | 4.23E-04 | 7.25E-07 | 4.22E-04 | 6.92E-07 | 4.13E-04 | 6.60E-07 | 4.05E-04 | 6.28E-07 | 3.97E-04 | 5.97E-07 | 3.89E-04 | 5.67E-07 | 3.82E-04 | 5.37E-07 | 3.74E-04 | 5.08E-07 | 3.67E-04 |
| 9.37E-07 | 5.78E-02 | 1.02E-06 | 5.96E-02 | 1.09E-06 | 6.13E-02 | 1.17E-06 | 6.30E-02 | 1.24E-06 | 6.47E-02 | 1.23E-06 | 6.45E-02 | 1.18E-06 | 6.32E-02 | 1.12E-06 | 6.20E-02 | 1.07E-06 | 6.07E-02 | 1.01E-06 | 5.95E-02 | 9.62E-07 | 5.84E-02 | 9.11E-07 | 5.72E-02 | 8.62E-07 | 5.61E-02 |
| 9.37E-07 | 1.66E-02 | 1.02E-06 | 1.72E-02 | 1.09E-06 | 1.77E-02 | 1.17E-06 | 1.82E-02 | 1.24E-06 | 1.86E-02 | 1.23E-06 | 1.86E-02 | 1.18E-06 | 1.82E-02 | 1.12E-06 | 1.78E-02 | 1.07E-06 | 1.75E-02 | 1.01E-06 | 1.71E-02 | 9.62E-07 | 1.68E-02 | 9.11E-07 | 1.65E-02 | 8.62E-07 | 1.62E-02 |
| 9.98E-04 | 5.49E+00 | 1.08E-03 | 5.66E+00 | 1.16E-03 | 5.83E+00 | 1.24E-03 | 5.99E+00 | 1.32E-03 | 6.15E+00 | 1.31E-03 | 6.13E+00 | 1.25E-03 | 6.01E+00 | 1.19E-03 | 5.89E+00 | 1.14E-03 | 5.77E+00 | 1.08E-03 | 5.66E+00 | 1.02E-03 | 5.55E+00 | 9.71E-04 | 5.44E+00 | 9.18E-04 | 5.33E+00 |

| 2048 | | 2049 | | 2050 | | 2051 | | 2052 | | 2053 | | 2054 | | 2055 | | 2056 | | 2057 | | 2058 | | 30 year Average | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG |
| 5.22E-05 | 9.02E-02 | 4.91E-05 | 8.84E-02 | 4.61E-05 | 8.66E-02 | 4.31E-05 | 8.49E-02 | 4.03E-05 | 8.32E-02 | 3.74E-05 | 8.16E-02 | 3.47E-05 | 8.00E-02 | 3.20E-05 | 7.84E-02 | 2.92E-05 | 7.68E-02 | 2.66E-05 | 7.53E-02 | 2.41E-05 | 7.38E-02 | 5.17E-05 | 8.99E-02 |
| 4.78E-07 | 1.04E-02 | 4.50E-07 | 1.02E-02 | 4.22E-07 | 1.00E-02 | 3.95E-07 | 9.82E-03 | 3.69E-07 | 9.63E-03 | 3.43E-07 | 9.44E-03 | 3.18E-07 | 9.25E-03 | 2.93E-07 | 9.07E-03 | 2.68E-07 | 8.88E-03 | 2.44E-07 | 8.71E-03 | 2.21E-07 | 8.54E-03 | 4.74E-07 | 1.04E-02 |
| 1.45E-06 | 9.88E-04 | 1.37E-06 | 9.68E-04 | 1.28E-06 | 9.49E-04 | 1.20E-06 | 9.30E-04 | 1.12E-06 | 9.12E-04 | 1.04E-06 | 8.94E-04 | 9.67E-07 | 8.77E-04 | 8.91E-07 | 8.59E-04 | 8.15E-07 | 8.42E-04 | 7.42E-07 | 8.25E-04 | 6.72E-07 | 8.09E-04 | 1.44E-06 | 9.85E-04 |
| 8.62E-07 | 7.40E-04 | 8.11E-07 | 7.25E-04 | 7.61E-07 | 7.11E-04 | 7.12E-07 | 6.97E-04 | 6.65E-07 | 6.83E-04 | 6.18E-07 | 6.69E-04 | 5.73E-07 | 6.56E-04 | 5.28E-07 | 6.43E-04 | 4.83E-07 | 6.30E-04 | 4.40E-07 | 6.18E-04 | 3.98E-07 | 6.06E-04 | 8.53E-07 | 7.37E-04 |
| 2.25E-06 | 3.65E-03 | 2.12E-06 | 3.58E-03 | 1.99E-06 | 3.50E-03 | 1.86E-06 | 3.43E-03 | 1.74E-06 | 3.37E-03 | 1.61E-06 | 3.30E-03 | 1.50E-06 | 3.24E-03 | 1.38E-06 | 3.17E-03 | 1.26E-06 | 3.11E-03 | 1.15E-06 | 3.05E-03 | 1.04E-06 | 2.99E-03 | 2.23E-06 | 3.64E-03 |
| 7.58E-07 | 6.50E-04 | 7.13E-07 | 6.38E-04 | 6.69E-07 | 6.25E-04 | 6.26E-07 | 6.12E-04 | 5.85E-07 | 6.01E-04 | 5.44E-07 | 5.89E-04 | 5.04E-07 | 5.77E-04 | 4.64E-07 | 5.66E-04 | 4.25E-07 | 5.54E-04 | 3.87E-07 | 5.43E-04 | 3.50E-07 | 5.33E-04 | 7.50E-07 | 6.48E-04 |
| 7.58E-07 | 1.63E-03 | 7.13E-07 | 1.60E-03 | 6.69E-07 | 1.57E-03 | 6.26E-07 | 1.54E-03 | 5.85E-07 | 1.51E-03 | 5.44E-07 | 1.48E-03 | 5.04E-07 | 1.45E-03 | 4.64E-07 | 1.42E-03 | 4.25E-07 | 1.39E-03 | 3.87E-07 | 1.36E-03 | 3.50E-07 | 1.34E-03 | 7.50E-07 | 1.63E-03 |
| 7.42E-07 | 6.37E-04 | 6.99E-07 | 6.25E-04 | 6.55E-07 | 6.12E-04 | 6.13E-07 | 6.00E-04 | 5.73E-07 | 5.88E-04 | 5.32E-07 | 5.77E-04 | 4.94E-07 | 5.65E-04 | 4.55E-07 | 5.54E-04 | 4.16E-07 | 5.43E-04 | 3.79E-07 | 5.32E-04 | 3.43E-07 | 5.22E-04 | 7.35E-07 | 6.35E-04 |
| 1.39E-06 | 2.26E-03 | 1.31E-06 | 2.22E-03 | 1.22E-06 | 2.17E-03 | 1.15E-06 | 2.13E-03 | 1.07E-06 | 2.09E-03 | 9.95E-07 | 2.05E-03 | 9.23E-07 | 2.01E-03 | 8.50E-07 | 1.97E-03 | 7.78E-07 | 1.93E-03 | 7.08E-07 | 1.89E-03 | 6.41E-07 | 1.85E-03 | 1.37E-06 | 2.25E-03 |
| 1.44E-06 | 1.23E-03 | 1.35E-06 | 1.21E-03 | 1.27E-06 | 1.19E-03 | 1.19E-06 | 1.16E-03 | 1.11E-06 | 1.14E-03 | 1.03E-06 | 1.12E-03 | 9.57E-07 | 1.10E-03 | 8.81E-07 | 1.07E-03 | 8.06E-07 | 1.05E-03 | 7.34E-07 | 1.03E-03 | 6.65E-07 | 1.01E-03 | 1.42E-06 | 1.23E-03 |
| 1.02E-06 | 3.77E-03 | 9.56E-07 | 3.69E-03 | 8.97E-07 | 3.62E-03 | 8.39E-07 | 3.55E-03 | 7.84E-07 | 3.48E-03 | 7.29E-07 | 3.41E-03 | 6.76E-07 | 3.34E-03 | 6.22E-07 | 3.28E-03 | 5.69E-07 | 3.21E-03 | 5.18E-07 | 3.15E-03 | 4.69E-07 | 3.08E-03 | 1.01E-06 | 3.75E-03 |
| 9.42E-07 | 8.85E-04 | 8.87E-07 | 8.67E-04 | 8.32E-07 | 8.50E-04 | 7.78E-07 | 8.33E-04 | 7.27E-07 | 8.17E-04 | 6.76E-07 | 8.00E-04 | 6.27E-07 | 7.85E-04 | 5.77E-07 | 7.69E-04 | 5.28E-07 | 7.54E-04 | 4.81E-07 | 7.39E-04 | 4.35E-07 | 7.24E-04 | 9.33E-07 | 8.82E-04 |
| 2.73E-06 | 9.92E-02 | 2.57E-06 | 9.72E-02 | 2.41E-06 | 9.52E-02 | 2.26E-06 | 9.34E-02 | 2.11E-06 | 9.15E-02 | 1.96E-06 | 8.97E-02 | 1.82E-06 | 8.80E-02 | 1.67E-06 | 8.62E-02 | 1.53E-06 | 8.45E-02 | 1.39E-06 | 8.28E-02 | 1.26E-06 | 8.12E-02 | 2.70E-06 | 9.88E-02 |
| 8.17E-07 | 7.67E-04 | 7.69E-07 | 7.52E-04 | 7.21E-07 | 7.37E-04 | 6.75E-07 | 7.22E-04 | 6.31E-07 | 7.08E-04 | 5.86E-07 | 6.94E-04 | 5.43E-07 | 6.81E-04 | 5.01E-07 | 6.67E-04 | 4.58E-07 | 6.54E-04 | 4.17E-07 | 6.41E-04 | 3.78E-07 | 6.28E-04 | 8.09E-07 | 7.65E-04 |
| 8.05E-07 | 7.56E-04 | 7.58E-07 | 7.41E-04 | 7.10E-07 | 7.26E-04 | 6.65E-07 | 7.11E-04 | 6.21E-07 | 6.98E-04 | 5.77E-07 | 6.84E-04 | 5.35E-07 | 6.70E-04 | 4.93E-07 | 6.57E-04 | 4.51E-07 | 6.44E-04 | 4.11E-07 | 6.31E-04 | 3.72E-07 | 6.19E-04 | 7.97E-07 | 7.53E-04 |
| 7.31E-07 | 6.87E-04 | 6.88E-07 | 6.73E-04 | 6.45E-07 | 6.59E-04 | 6.04E-07 | 6.46E-04 | 5.64E-07 | 6.34E-04 | 5.25E-07 | 6.21E-04 | 4.86E-07 | 6.09E-04 | 4.48E-07 | 5.97E-04 | 4.10E-07 | 5.85E-04 | 3.73E-07 | 5.73E-04 | 3.38E-07 | 5.62E-04 | 7.24E-07 | 6.84E-04 |
| 4.78E-07 | 3.59E-04 | 4.50E-07 | 3.52E-04 | 4.22E-07 | 3.45E-04 | 3.95E-07 | 3.38E-04 | 3.69E-07 | 3.32E-04 | 3.43E-07 | 3.25E-04 | 3.18E-07 | 3.19E-04 | 2.93E-07 | 3.13E-04 | 2.68E-07 | 3.06E-04 | 2.44E-07 | 3.00E-04 | 2.21E-07 | 2.94E-04 | 4.74E-07 | 3.58E-04 |
| 8.13E-07 | 5.49E-02 | 7.65E-07 | 5.39E-02 | 7.17E-07 | 5.28E-02 | 6.72E-07 | 5.17E-02 | 6.27E-07 | 5.07E-02 | 5.83E-07 | 4.97E-02 | 5.41E-07 | 4.88E-02 | 4.98E-07 | 4.78E-02 | 4.56E-07 | 4.68E-02 | 4.15E-07 | 4.59E-02 | 3.76E-07 | 4.50E-02 | 8.05E-07 | 5.48E-02 |
| 8.13E-07 | 1.58E-02 | 7.65E-07 | 1.55E-02 | 7.17E-07 | 1.52E-02 | 6.72E-07 | 1.49E-02 | 6.27E-07 | 1.46E-02 | 5.83E-07 | 1.43E-02 | 5.41E-07 | 1.40E-02 | 4.98E-07 | 1.38E-02 | 4.56E-07 | 1.35E-02 | 4.15E-07 | 1.32E-02 | 3.76E-07 | 1.30E-02 | 8.05E-07 | 1.58E-02 |
| 8.65E-04 | 5.22E+00 | 8.15E-04 | 5.12E+00 | 7.64E-04 | 5.02E+00 | 7.15E-04 | 4.92E+00 | 6.68E-04 | 4.82E+00 | 6.21E-04 | 4.73E+00 | 5.76E-04 | 4.63E+00 | 5.30E-04 | 4.54E+00 | 4.85E-04 | 4.45E+00 | 4.42E-04 | 4.36E+00 | 4.00E-04 | 4.28E+00 | 8.57E-04 | 5.20E+00 |

**Chiquita Canyon Landfill EIR**

**Operation Emissions - LandGEM Landfill Gas Generation**

**LandGEM Landfill Gas Generation Data**

| Year | Annual Refuse Acceptange Rate (tons) | Cumulative Refuse Acceptance (tons) | Total LFG Generation (scfm) | Total LFG Recovery (85%) (scfm) | Total Fugitive LFG |
|---|---|---|---|---|---|
| 2017 | 1,671,429 | 33,646,802 | 6,248 | 5,311 | 937 |
| 2018 | 1,894,286 | 35,318,231 | 6,529 | 5,550 | 979 |
| 2019 | 2,117,143 | 37,212,516 | 6,858 | 5,829 | 1,029 |
| 2020 | 2,340,000 | 39,329,659 | 7,235 | 6,150 | 1,085 |
| 2021 | 2,562,857 | 41,669,659 | 7,658 | 6,509 | 1,149 |
| 2022 | 2,785,714 | 44,232,516 | 8,127 | 6,908 | 1,219 |
| 2023 | 3,008,571 | 47,018,231 | 8,641 | 7,345 | 1,296 |
| 2024 | 3,120,000 | 50,026,802 | 9,198 | 7,818 | 1,380 |
| 2025 | 3,120,000 | 53,146,802 | 9,772 | 8,306 | 1,466 |
| 2026 | 3,120,000 | 56,266,802 | 10,330 | 8,781 | 1,550 |
| 2027 | 3,120,000 | 59,386,802 | 10,880 | 9,248 | 1,632 |
| 2028 | 3,120,000 | 62,506,802 | 11,420 | 9,707 | 1,713 |
| 2029 | 3,120,000 | 65,626,802 | 11,950 | 10,158 | 1,793 |
| 2030 | 3,120,000 | 68,746,802 | 12,470 | 10,600 | 1,871 |
| 2031 | 3,120,000 | 71,866,802 | 12,980 | 11,033 | 1,947 |
| 2032 | 3,120,000 | 74,986,802 | 13,480 | 11,458 | 2,022 |
| 2033 | 3,120,000 | 78,106,802 | 13,970 | 11,875 | 2,096 |
| 2034 | 3,120,000 | 81,226,802 | 14,450 | 12,283 | 2,168 |
| 2035 | 3,120,000 | 84,346,802 | 14,920 | 12,682 | 2,238 |
| 2036 | 3,120,000 | 87,466,802 | 15,380 | 13,073 | 2,307 |
| 2037 | 3,120,000 | 90,586,802 | 15,830 | 13,456 | 2,375 |
| 2038 | 3,120,000 | 93,706,802 | 16,270 | 13,830 | 2,441 |
| 2039 | 1,158,710 | 96,826,802 | 16,700 | 14,195 | 2,505 |
| 2040 | 0 | 97,985,512 | 16,650 | 14,153 | 2,498 |
| 2041 | | | 16,320 | 13,872 | 2,448 |
| 2042 | | | 16,000 | 13,600 | 2,400 |
| 2043 | | | 15,680 | 13,328 | 2,352 |
| 2044 | | | 15,370 | 13,065 | 2,306 |
| 2045 | | | 15,070 | 12,810 | 2,261 |
| 2046 | | | 14,770 | 12,555 | 2,216 |
| 2047 | | | 14,480 | 12,308 | 2,172 |
| 2048 | | | 14,190 | 12,062 | 2,129 |
| 2049 | | | 13,910 | 11,824 | 2,087 |
| 2050 | | | 13,630 | 11,586 | 2,045 |
| 2051 | | | 13,360 | 11,356 | 2,004 |
| 2052 | | | 13,100 | 11,135 | 1,965 |
| 2053 | | | 12,840 | 10,914 | 1,926 |
| 2054 | | | 12,590 | 10,702 | 1,889 |
| 2055 | | | 12,340 | 10,489 | 1,851 |
| 2056 | | | 12,090 | 10,277 | 1,814 |
| 2057 | | | 11,850 | 10,073 | 1,778 |
| 2058 | | | 11,620 | 9,877 | 1,743 |
| 2059 | | | 11,390 | 9,682 | 1,709 |
| 2060 | | | 11,160 | 9,486 | 1,674 |
| 2061 | | | 10,940 | 9,299 | 1,641 |
| 2062 | | | 10,720 | 9,112 | 1,608 |
| 2063 | | | 10,510 | 8,934 | 1,577 |
| 2064 | | | 10,300 | 8,755 | 1,545 |
| 2065 | | | 10,100 | 8,585 | 1,515 |
| 2066 | | | 9,900 | 8,415 | 1,485 |
| 2067 | | | 9,704 | 8,248 | 1,456 |
| 2068 | | | 9,512 | 8,085 | 1,427 |
| 2069 | | | 9,324 | 7,925 | 1,399 |
| 2070 | | | 9,139 | 7,768 | 1,371 |
| 2071 | | | 8,958 | 7,614 | 1,344 |
| 2072 | | | 8,781 | 7,464 | 1,317 |
| 2073 | | | 8,607 | 7,316 | 1,291 |
| 2074 | | | 8,437 | 7,171 | 1,266 |
| 2075 | | | 8,269 | 7,029 | 1,240 |
| 2076 | | | 8,106 | 6,890 | 1,216 |
| 2077 | | | 7,945 | 6,753 | 1,192 |
| 2078 | | | 7,788 | 6,620 | 1,168 |
| 2079 | | | 7,634 | 6,489 | 1,145 |
| 2080 | | | 7,483 | 6,361 | 1,122 |
| 2081 | | | 7,334 | 6,234 | 1,100 |
| 2082 | | | 7,189 | 6,111 | 1,078 |
| 2083 | | | 7,047 | 5,990 | 1,057 |
| 2084 | | | 6,907 | 5,871 | 1,036 |
| 2085 | | | 6,770 | 5,755 | 1,016 |
| 2086 | | | 6,636 | 5,641 | 995 |
| 2087 | | | 6,505 | 5,529 | 976 |

**LandGEM Landfill Gas Generation Data: Highest 30 Years**

| Year | Annual Refuse Acceptange Rate (tons) | Cumulative Refuse Acceptance (tons) | Total LFG Generation (scfm) | Total LFG Recovery (85%) (scfm) | Total Fugitive LFG |
|---|---|---|---|---|---|
| 2029 | 3,120,000 | 65,626,802 | 11,950 | 10,158 | 1,793 |
| 2030 | 3,120,000 | 68,746,802 | 12,470 | 10,600 | 1,871 |
| 2031 | 3,120,000 | 71,866,802 | 12,980 | 11,033 | 1,947 |
| 2032 | 3,120,000 | 74,986,802 | 13,480 | 11,458 | 2,022 |
| 2033 | 3,120,000 | 78,106,802 | 13,970 | 11,875 | 2,096 |
| 2034 | 3,120,000 | 81,226,802 | 14,450 | 12,283 | 2,168 |
| 2035 | 3,120,000 | 84,346,802 | 14,920 | 12,682 | 2,238 |
| 2036 | 3,120,000 | 87,466,802 | 15,380 | 13,073 | 2,307 |
| 2037 | 3,120,000 | 90,586,802 | 15,830 | 13,456 | 2,375 |
| 2038 | 3,120,000 | 93,706,802 | 16,270 | 13,830 | 2,441 |
| 2039 | 1,158,710 | 96,826,802 | 16,700 | 14,195 | 2,505 |
| 2040 | 0 | 97,985,512 | 16,650 | 14,153 | 2,498 |
| 2041 | | | 16,320 | 13,872 | 2,448 |
| 2042 | | | 16,000 | 13,600 | 2,400 |
| 2043 | | | 15,680 | 13,328 | 2,352 |
| 2044 | | | 15,370 | 13,065 | 2,306 |
| 2045 | | | 15,070 | 12,810 | 2,261 |
| 2046 | | | 14,770 | 12,555 | 2,216 |
| 2047 | | | 14,480 | 12,308 | 2,172 |
| 2048 | | | 14,190 | 12,062 | 2,129 |
| 2049 | | | 13,910 | 11,824 | 2,087 |
| 2050 | | | 13,630 | 11,586 | 2,045 |
| 2051 | | | 13,360 | 11,356 | 2,004 |
| 2052 | | | 13,100 | 11,135 | 1,965 |
| 2053 | | | 12,840 | 10,914 | 1,926 |
| 2054 | | | 12,590 | 10,702 | 1,889 |
| 2055 | | | 12,340 | 10,489 | 1,851 |
| 2056 | | | 12,090 | 10,277 | 1,814 |
| 2057 | | | 11,850 | 10,073 | 1,778 |
| 2058 | | | 11,620 | 9,877 | 1,743 |

Notes: Data obtained from Golder Associates LandGem Model Summary September 2016

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 20143 | 2014Aerial Lifts | 2014Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2400 | 0.2799 | 0.0509 | 0.0004 | 0.0272 | 0.0251 | 38.1 | 0.0046 | 120 | 3 |
| 2014 | 20144 | 2014Air Compressors | 2014Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3216 | 0.5860 | 0.0758 | 0.0006 | 0.0416 | 0.0383 | 47.0 | 0.0068 | 120 | 4 |
| 2014 | 20146 | 2014Bore/Drill Rigs | 2014Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3426 | 1.4079 | 0.0737 | 0.0021 | 0.0179 | 0.0165 | 188.1 | 0.0066 | 250 | 6 |
| 2014 | 20141 | 2014Cement and Mortar Mixers | 2014Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0644 | 0.0074 | 0.0001 | 0.0020 | 0.0018 | 6.3 | 0.0007 | 15 | 1 |
| 2014 | 20144 | 2014Concrete/Industrial Saws | 2014Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4796 | 0.9256 | 0.0978 | 0.0009 | 0.0538 | 0.0495 | 74.1 | 0.0088 | 120 | 4 |
| 2014 | 20146 | 2014Cranes | 2014Cranes250 | Cranes | 226 | 0.29 | 0.2817 | 0.8958 | 0.0979 | 0.0013 | 0.0317 | 0.0291 | 112.2 | 0.0088 | 250 | 6 |
| 2014 | 20146 | 2014Crawler Tractors | 2014Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4797 | 1.2225 | 0.1672 | 0.0019 | 0.0562 | 0.0517 | 166.1 | 0.0151 | 250 | 6 |
| 2014 | 20144 | 2014Crushing/Proc. Equipment | 2014Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5703 | 1.0378 | 0.1284 | 0.0010 | 0.0704 | 0.0648 | 83.1 | 0.0116 | 120 | 4 |
| 2014 | 20141 | 2014Dumpers/Tenders | 2014Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0317 | 0.0777 | 0.0095 | 0.0001 | 0.0027 | 0.0025 | 7.6 | 0.0009 | 25 | 1 |
| 2014 | 20145 | 2014Excavators | 2014Excavators175 | Excavators | 163 | 0.38 | 0.6660 | 0.8739 | 0.1134 | 0.0013 | 0.0457 | 0.0421 | 112.2 | 0.0102 | 175 | 5 |
| 2014 | 20144 | 2014Forklifts | 2014Forklifts120 | Forklifts | 89 | 0.2 | 0.2158 | 0.2786 | 0.0390 | 0.0004 | 0.0206 | 0.0190 | 31.2 | 0.0035 | 120 | 4 |
| 2014 | 20144 | 2014Generator Sets | 2014Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4857 | 0.9730 | 0.1008 | 0.0009 | 0.0537 | 0.0494 | 77.9 | 0.0091 | 120 | 4 |
| 2014 | 20146 | 2014Graders | 2014Graders175 | Graders | 175 | 0.41 | 0.7331 | 0.9807 | 0.1386 | 0.0014 | 0.0577 | 0.0531 | 123.9 | 0.0125 | 175 | 6 |
| 2014 | 20145 | 2014Off-Highway Tractors | 2014Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8272 | 0.7636 | 0.1960 | 0.0015 | 0.0820 | 0.0755 | 130.4 | 0.0177 | 175 | 5 |
| 2014 | 20147 | 2014Off-Highway Trucks | 2014Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.6134 | 1.9771 | 0.2065 | 0.0027 | 0.0567 | 0.0522 | 272.3 | 0.0186 | 500 | 7 |
| 2014 | 20145 | 2014Other Construction Equipment | 2014Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5867 | 1.0193 | 0.0868 | 0.0012 | 0.0374 | 0.0344 | 106.5 | 0.0078 | 175 | 5 |
| 2014 | 20144 | 2014Other General Industrial Equipmen | 2014Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4435 | 0.4683 | 0.1082 | 0.0007 | 0.0583 | 0.0536 | 62.0 | 0.0098 | 120 | 4 |
| 2014 | 20145 | 2014Other Material Handling Equipment | 2014Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7226 | 0.9425 | 0.1481 | 0.0014 | 0.0631 | 0.0581 | 122.1 | 0.0134 | 175 | 5 |
| 2014 | 20145 | 2014Pavers | 2014Pavers175 | Pavers | 126 | 0.42 | 0.7742 | 0.7467 | 0.1695 | 0.0014 | 0.0720 | 0.0663 | 128.3 | 0.0153 | 175 | 5 |
| 2014 | 20145 | 2014Paving Equipment | 2014Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.6049 | 0.6654 | 0.1323 | 0.0011 | 0.0565 | 0.0519 | 101.0 | 0.0119 | 175 | 5 |
| 2014 | 20141 | 2014Plate Compactors | 2014Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0440 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2014 | 20141 | 2014Pressure Washers | 2014Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0321 | 0.0499 | 0.0068 | 0.0001 | 0.0026 | 0.0024 | 4.9 | 0.0006 | 15 | 1 |
| 2014 | 20144 | 2014Pumps | 2014Pumps120 | Pumps | 84 | 0.74 | 0.4934 | 0.9730 | 0.1049 | 0.0009 | 0.0563 | 0.0518 | 77.9 | 0.0095 | 120 | 4 |
| 2014 | 20144 | 2014Rollers | 2014Rollers120 | Rollers | 81 | 0.38 | 0.4030 | 0.4818 | 0.0921 | 0.0007 | 0.0494 | 0.0454 | 59.0 | 0.0083 | 120 | 4 |
| 2014 | 20145 | 2014Rough Terrain Forklifts | 2014Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4292 | 0.5644 | 0.0877 | 0.0007 | 0.0474 | 0.0436 | 62.4 | 0.0079 | 120 | 5 |
| 2014 | 20146 | 2014Rubber Tired Dozers | 2014Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 1.3307 | 1.3942 | 0.3072 | 0.0026 | 0.1058 | 0.0973 | 264.9 | 0.0277 | 500 | 6 |
| 2014 | 20146 | 2014Rubber Tired Loaders | 2014Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3553 | 0.9841 | 0.1186 | 0.0017 | 0.0375 | 0.0345 | 149.0 | 0.0107 | 250 | 6 |
| 2014 | 20147 | 2014Scrapers | 2014Scrapers500 | Scrapers | 362 | 0.48 | 1.1355 | 2.2601 | 0.3033 | 0.0032 | 0.1012 | 0.0931 | 321.4 | 0.0274 | 500 | 7 |
| 2014 | 20141 | 2014Signal Boards | 2014Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0629 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2014 | 20143 | 2014Skid Steer Loaders | 2014Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2727 | 0.3446 | 0.0380 | 0.0005 | 0.0205 | 0.0189 | 42.8 | 0.0034 | 120 | 3 |
| 2014 | 20146 | 2014Surfacing Equipment | 2014Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.6069 | 1.0416 | 0.1433 | 0.0022 | 0.0516 | 0.0475 | 221.2 | 0.0129 | 500 | 6 |
| 2014 | 20143 | 2014Sweepers/Scrubbers | 2014Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.5098 | 0.4219 | 0.0991 | 0.0009 | 0.0543 | 0.0499 | 75.0 | 0.0089 | 120 | 3 |
| 2014 | 20144 | 2014Tractors/Loaders/Backhoes | 2014Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3503 | 0.5676 | 0.0634 | 0.0006 | 0.0337 | 0.0310 | 51.7 | 0.0057 | 120 | 4 |
| 2014 | 20144 | 2014Trenchers | 2014Trenchers120 | Trenchers | 81 | 0.5 | 0.4640 | 0.6339 | 0.1212 | 0.0008 | 0.0629 | 0.0578 | 64.9 | 0.0109 | 120 | 4 |
| 2014 | 20142 | 2014Welders | 2014Welders50 | Welders | 46 | 0.45 | 0.2652 | 0.2647 | 0.0886 | 0.0003 | 0.0219 | 0.0202 | 26.0 | 0.0080 | 50 | 2 |
| 2015 | 20153 | 2015Aerial Lifts | 2015Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2377 | 0.2669 | 0.0460 | 0.0004 | 0.0246 | 0.0226 | 38.1 | 0.0042 | 120 | 3 |
| 2015 | 20154 | 2015Air Compressors | 2015Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3182 | 0.5530 | 0.0691 | 0.0006 | 0.0375 | 0.0345 | 47.0 | 0.0062 | 120 | 4 |
| 2015 | 20156 | 2015Bore/Drill Rigs | 2015Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3425 | 1.3170 | 0.0681 | 0.0021 | 0.0144 | 0.0132 | 188.1 | 0.0061 | 250 | 6 |
| 2015 | 20151 | 2015Cement and Mortar Mixers | 2015Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0622 | 0.0074 | 0.0001 | 0.0019 | 0.0018 | 6.3 | 0.0007 | 15 | 1 |
| 2015 | 20154 | 2015Concrete/Industrial Saws | 2015Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4759 | 0.8734 | 0.0892 | 0.0009 | 0.0486 | 0.0448 | 74.1 | 0.0080 | 120 | 4 |
| 2015 | 20156 | 2015Cranes | 2015Cranes250 | Cranes | 226 | 0.29 | 0.2713 | 0.8380 | 0.0925 | 0.0013 | 0.0286 | 0.0263 | 112.2 | 0.0083 | 250 | 6 |
| 2015 | 20156 | 2015Crawler Tractors | 2015Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4614 | 1.1437 | 0.1582 | 0.0019 | 0.0514 | 0.0473 | 166.1 | 0.0143 | 250 | 6 |
| 2015 | 20154 | 2015Crushing/Proc. Equipment | 2015Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5646 | 0.9793 | 0.1167 | 0.0010 | 0.0629 | 0.0579 | 83.1 | 0.0105 | 120 | 4 |
| 2015 | 20151 | 2015Dumpers/Tenders | 2015Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0315 | 0.0751 | 0.0093 | 0.0001 | 0.0025 | 0.0023 | 7.6 | 0.0008 | 25 | 1 |
| 2015 | 20155 | 2015Excavators | 2015Excavators175 | Excavators | 163 | 0.38 | 0.6653 | 0.8193 | 0.1052 | 0.0013 | 0.0405 | 0.0372 | 112.2 | 0.0095 | 175 | 5 |
| 2015 | 20154 | 2015Forklifts | 2015Forklifts120 | Forklifts | 89 | 0.2 | 0.2143 | 0.2629 | 0.0345 | 0.0004 | 0.0174 | 0.0160 | 31.2 | 0.0031 | 120 | 4 |
| 2015 | 20154 | 2015Generator Sets | 2015Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4811 | 0.9182 | 0.0910 | 0.0009 | 0.0484 | 0.0445 | 77.9 | 0.0082 | 120 | 4 |
| 2015 | 20156 | 2015Graders | 2015Graders175 | Graders | 175 | 0.41 | 0.7319 | 0.9175 | 0.1299 | 0.0014 | 0.0526 | 0.0484 | 123.9 | 0.0117 | 175 | 6 |
| 2015 | 20155 | 2015Off-Highway Tractors | 2015Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8216 | 0.7159 | 0.1870 | 0.0015 | 0.0771 | 0.0709 | 130.4 | 0.0169 | 175 | 5 |
| 2015 | 20157 | 2015Off-Highway Trucks | 2015Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5949 | 1.8431 | 0.1960 | 0.0027 | 0.0505 | 0.0465 | 272.3 | 0.0177 | 500 | 7 |
| 2015 | 20155 | 2015Other Construction Equipment | 2015Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5864 | 0.9556 | 0.0796 | 0.0012 | 0.0331 | 0.0305 | 106.5 | 0.0072 | 175 | 5 |
| 2015 | 20154 | 2015Other General Industrial Equipmen | 2015Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4387 | 0.4419 | 0.0987 | 0.0007 | 0.0521 | 0.0480 | 62.0 | 0.0089 | 120 | 4 |
| 2015 | 20155 | 2015Other Material Handling Equipment | 2015Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7201 | 0.8836 | 0.1365 | 0.0014 | 0.0567 | 0.0522 | 122.1 | 0.0123 | 175 | 5 |
| 2015 | 20155 | 2015Pavers | 2015Pavers175 | Pavers | 126 | 0.42 | 0.7707 | 0.7000 | 0.1608 | 0.0014 | 0.0673 | 0.0619 | 128.3 | 0.0145 | 175 | 5 |
| 2015 | 20155 | 2015Paving Equipment | 2015Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.6025 | 0.6238 | 0.1254 | 0.0011 | 0.0528 | 0.0486 | 101.0 | 0.0113 | 175 | 5 |
| 2015 | 20151 | 2015Plate Compactors | 2015Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0425 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2015 | 20151 | 2015Pressure Washers | 2015Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0315 | 0.0481 | 0.0065 | 0.0001 | 0.0024 | 0.0022 | 4.9 | 0.0006 | 15 | 1 |
| 2015 | 20154 | 2015Pumps | 2015Pumps120 | Pumps | 84 | 0.74 | 0.4887 | 0.9182 | 0.0949 | 0.0009 | 0.0508 | 0.0467 | 77.9 | 0.0086 | 120 | 4 |
| 2015 | 20154 | 2015Rollers | 2015Rollers120 | Rollers | 81 | 0.38 | 0.4000 | 0.4546 | 0.0857 | 0.0007 | 0.0454 | 0.0418 | 59.0 | 0.0077 | 120 | 4 |
| 2015 | 20155 | 2015Rough Terrain Forklifts | 2015Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4260 | 0.5291 | 0.0801 | 0.0007 | 0.0420 | 0.0387 | 62.4 | 0.0072 | 120 | 5 |
| 2015 | 20156 | 2015Rubber Tired Dozers | 2015Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 1.2456 | 1.3043 | 0.2932 | 0.0026 | 0.0985 | 0.0906 | 264.9 | 0.0265 | 500 | 6 |
| 2015 | 20156 | 2015Rubber Tired Loaders | 2015Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3444 | 0.9206 | 0.1118 | 0.0017 | 0.0337 | 0.0310 | 149.0 | 0.0101 | 250 | 6 |
| 2015 | 20157 | 2015Scrapers | 2015Scrapers500 | Scrapers | 362 | 0.48 | 1.0688 | 2.1069 | 0.2883 | 0.0032 | 0.0930 | 0.0855 | 321.4 | 0.0260 | 500 | 7 |
| 2015 | 20151 | 2015Signal Boards | 2015Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0607 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2015 | 20153 | 2015Skid Steer Loaders | 2015Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2710 | 0.3287 | 0.0334 | 0.0005 | 0.0170 | 0.0156 | 42.8 | 0.0030 | 120 | 3 |
| 2015 | 20156 | 2015Surfacing Equipment | 2015Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.5759 | 0.9744 | 0.1342 | 0.0022 | 0.0468 | 0.0431 | 221.2 | 0.0121 | 500 | 6 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 20153 | 2015Sweepers/Scrubbers | 2015Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.5056 | 0.4024 | 0.0880 | 0.0009 | 0.0466 | 0.0429 | 75.0 | 0.0079 | 120 | 3 |
| 2015 | 20154 | 2015Tractors/Loaders/Backhoes | 2015Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3480 | 0.5356 | 0.0577 | 0.0006 | 0.0293 | 0.0270 | 51.7 | 0.0052 | 120 | 4 |
| 2015 | 20154 | 2015Trenchers | 2015Trenchers120 | Trenchers | 81 | 0.5 | 0.4600 | 0.5982 | 0.1144 | 0.0008 | 0.0590 | 0.0542 | 64.9 | 0.0103 | 120 | 4 |
| 2015 | 20152 | 2015Welders | 2015Welders50 | Welders | 46 | 0.45 | 0.2564 | 0.2556 | 0.0801 | 0.0003 | 0.0200 | 0.0184 | 26.0 | 0.0072 | 50 | 2 |
| 2016 | 20163 | 2016Aerial Lifts | 2016Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2355 | 0.2497 | 0.0413 | 0.0004 | 0.0219 | 0.0201 | 38.1 | 0.0037 | 120 | 3 |
| 2016 | 20164 | 2016Air Compressors | 2016Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3150 | 0.5118 | 0.0624 | 0.0006 | 0.0333 | 0.0307 | 47.0 | 0.0056 | 120 | 4 |
| 2016 | 20166 | 2016Bore/Drill Rigs | 2016Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3425 | 1.2035 | 0.0628 | 0.0021 | 0.0114 | 0.0104 | 188.1 | 0.0057 | 250 | 6 |
| 2016 | 20161 | 2016Cement and Mortar Mixers | 2016Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0589 | 0.0074 | 0.0001 | 0.0019 | 0.0017 | 6.3 | 0.0007 | 15 | 1 |
| 2016 | 20164 | 2016Concrete/Industrial Saws | 2016Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4724 | 0.8082 | 0.0809 | 0.0009 | 0.0436 | 0.0401 | 74.1 | 0.0073 | 120 | 4 |
| 2016 | 20166 | 2016Cranes | 2016Cranes250 | Cranes | 226 | 0.29 | 0.2634 | 0.7658 | 0.0875 | 0.0013 | 0.0259 | 0.0239 | 112.2 | 0.0079 | 250 | 6 |
| 2016 | 20166 | 2016Crawler Tractors | 2016Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4452 | 1.0451 | 0.1496 | 0.0019 | 0.0468 | 0.0431 | 166.1 | 0.0135 | 250 | 6 |
| 2016 | 20164 | 2016Crushing/Proc. Equipment | 2016Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5594 | 0.9062 | 0.1054 | 0.0010 | 0.0555 | 0.0510 | 83.1 | 0.0095 | 120 | 4 |
| 2016 | 20161 | 2016Dumpers/Tenders | 2016Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0314 | 0.0710 | 0.0093 | 0.0001 | 0.0024 | 0.0022 | 7.6 | 0.0008 | 25 | 1 |
| 2016 | 20165 | 2016Excavators | 2016Excavators175 | Excavators | 163 | 0.38 | 0.6648 | 0.7510 | 0.0972 | 0.0013 | 0.0355 | 0.0326 | 112.2 | 0.0088 | 175 | 5 |
| 2016 | 20164 | 2016Forklifts | 2016Forklifts120 | Forklifts | 89 | 0.2 | 0.2133 | 0.2433 | 0.0313 | 0.0004 | 0.0149 | 0.0137 | 31.2 | 0.0028 | 120 | 4 |
| 2016 | 20164 | 2016Generator Sets | 2016Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4767 | 0.8496 | 0.0814 | 0.0009 | 0.0431 | 0.0397 | 77.9 | 0.0073 | 120 | 4 |
| 2016 | 20166 | 2016Graders | 2016Graders175 | Graders | 175 | 0.41 | 0.7310 | 0.8384 | 0.1215 | 0.0014 | 0.0476 | 0.0438 | 123.9 | 0.0110 | 175 | 6 |
| 2016 | 20165 | 2016Off-Highway Tractors | 2016Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8166 | 0.6562 | 0.1782 | 0.0015 | 0.0723 | 0.0665 | 130.4 | 0.0161 | 175 | 5 |
| 2016 | 20167 | 2016Off-Highway Trucks | 2016Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5796 | 1.7090 | 0.1855 | 0.0027 | 0.0448 | 0.0412 | 272.3 | 0.0167 | 500 | 7 |
| 2016 | 20165 | 2016Other Construction Equipment | 2016Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5862 | 0.8759 | 0.0729 | 0.0012 | 0.0291 | 0.0267 | 106.5 | 0.0066 | 175 | 5 |
| 2016 | 20164 | 2016Other General Industrial Equipmen | 2016Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4343 | 0.4090 | 0.0895 | 0.0007 | 0.0461 | 0.0424 | 62.0 | 0.0081 | 120 | 4 |
| 2016 | 20165 | 2016Other Material Handling Equipment | 2016Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7182 | 0.8100 | 0.1251 | 0.0014 | 0.0504 | 0.0463 | 122.1 | 0.0113 | 175 | 5 |
| 2016 | 20165 | 2016Pavers | 2016Pavers175 | Pavers | 126 | 0.42 | 0.7678 | 0.6417 | 0.1524 | 0.0014 | 0.0627 | 0.0576 | 128.3 | 0.0138 | 175 | 5 |
| 2016 | 20165 | 2016Paving Equipment | 2016Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.6004 | 0.5718 | 0.1188 | 0.0011 | 0.0492 | 0.0453 | 101.0 | 0.0107 | 175 | 5 |
| 2016 | 20161 | 2016Plate Compactors | 2016Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0402 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2016 | 20161 | 2016Pressure Washers | 2016Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0312 | 0.0456 | 0.0062 | 0.0001 | 0.0023 | 0.0021 | 4.9 | 0.0006 | 15 | 1 |
| 2016 | 20164 | 2016Pumps | 2016Pumps120 | Pumps | 84 | 0.74 | 0.4842 | 0.8496 | 0.0851 | 0.0009 | 0.0453 | 0.0416 | 77.9 | 0.0077 | 120 | 4 |
| 2016 | 20164 | 2016Rollers | 2016Rollers120 | Rollers | 81 | 0.38 | 0.3971 | 0.4207 | 0.0795 | 0.0007 | 0.0416 | 0.0383 | 59.0 | 0.0072 | 120 | 4 |
| 2016 | 20165 | 2016Rough Terrain Forklifts | 2016Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4231 | 0.4850 | 0.0729 | 0.0007 | 0.0369 | 0.0339 | 62.4 | 0.0066 | 120 | 5 |
| 2016 | 20166 | 2016Rubber Tired Dozers | 2016Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 1.1678 | 1.1918 | 0.2794 | 0.0026 | 0.0915 | 0.0842 | 264.9 | 0.0252 | 500 | 6 |
| 2016 | 20166 | 2016Rubber Tired Loaders | 2016Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3357 | 0.8413 | 0.1056 | 0.0017 | 0.0302 | 0.0278 | 149.0 | 0.0095 | 250 | 6 |
| 2016 | 20167 | 2016Scrapers | 2016Scrapers500 | Scrapers | 362 | 0.48 | 1.0107 | 1.9537 | 0.2736 | 0.0032 | 0.0851 | 0.0783 | 321.4 | 0.0247 | 500 | 7 |
| 2016 | 20161 | 2016Signal Boards | 2016Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0575 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2016 | 20163 | 2016Skid Steer Loaders | 2016Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2695 | 0.3075 | 0.0295 | 0.0005 | 0.0138 | 0.0127 | 42.8 | 0.0027 | 120 | 3 |
| 2016 | 20166 | 2016Surfacing Equipment | 2016Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.5485 | 0.8904 | 0.1260 | 0.0022 | 0.0425 | 0.0391 | 221.2 | 0.0114 | 500 | 6 |
| 2016 | 20163 | 2016Sweepers/Scrubbers | 2016Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.5017 | 0.3764 | 0.0774 | 0.0009 | 0.0392 | 0.0361 | 75.0 | 0.0070 | 120 | 3 |
| 2016 | 20164 | 2016Tractors/Loaders/Backhoes | 2016Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3460 | 0.4956 | 0.0524 | 0.0006 | 0.0253 | 0.0233 | 51.7 | 0.0047 | 120 | 4 |
| 2016 | 20164 | 2016Trenchers | 2016Trenchers120 | Trenchers | 81 | 0.5 | 0.4563 | 0.5536 | 0.1080 | 0.0008 | 0.0551 | 0.0507 | 64.9 | 0.0097 | 120 | 4 |
| 2016 | 20162 | 2016Welders | 2016Welders50 | Welders | 46 | 0.45 | 0.2483 | 0.2419 | 0.0717 | 0.0003 | 0.0181 | 0.0166 | 26.0 | 0.0065 | 50 | 2 |
| 2017 | 20173 | 2017Aerial Lifts | 2017Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2336 | 0.2325 | 0.0368 | 0.0004 | 0.0194 | 0.0178 | 38.1 | 0.0033 | 120 | 3 |
| 2017 | 20174 | 2017Air Compressors | 2017Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3122 | 0.4540 | 0.0562 | 0.0006 | 0.0294 | 0.0270 | 47.0 | 0.0051 | 120 | 4 |
| 2017 | 20176 | 2017Bore/Drill Rigs | 2017Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3426 | 1.0673 | 0.0580 | 0.0021 | 0.0088 | 0.0081 | 188.1 | 0.0052 | 250 | 6 |
| 2017 | 20171 | 2017Cement and Mortar Mixers | 2017Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0556 | 0.0074 | 0.0001 | 0.0018 | 0.0017 | 6.3 | 0.0007 | 15 | 1 |
| 2017 | 20174 | 2017Concrete/Industrial Saws | 2017Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4691 | 0.7170 | 0.0728 | 0.0009 | 0.0385 | 0.0354 | 74.1 | 0.0066 | 120 | 4 |
| 2017 | 20176 | 2017Cranes | 2017Cranes250 | Cranes | 226 | 0.29 | 0.2572 | 0.6791 | 0.0830 | 0.0013 | 0.0235 | 0.0216 | 112.2 | 0.0075 | 250 | 6 |
| 2017 | 20176 | 2017Crawler Tractors | 2017Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4308 | 0.9268 | 0.1413 | 0.0019 | 0.0426 | 0.0391 | 166.1 | 0.0127 | 250 | 6 |
| 2017 | 20174 | 2017Crushing/Proc. Equipment | 2017Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5547 | 0.8039 | 0.0948 | 0.0010 | 0.0484 | 0.0445 | 83.1 | 0.0086 | 120 | 4 |
| 2017 | 20171 | 2017Dumpers/Tenders | 2017Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0314 | 0.0670 | 0.0092 | 0.0001 | 0.0023 | 0.0021 | 7.6 | 0.0008 | 25 | 1 |
| 2017 | 20175 | 2017Excavators | 2017Excavators175 | Excavators | 163 | 0.38 | 0.6644 | 0.6691 | 0.0896 | 0.0013 | 0.0308 | 0.0283 | 112.2 | 0.0081 | 175 | 5 |
| 2017 | 20174 | 2017Forklifts | 2017Forklifts120 | Forklifts | 89 | 0.2 | 0.2125 | 0.2158 | 0.0287 | 0.0004 | 0.0128 | 0.0117 | 31.2 | 0.0026 | 120 | 4 |
| 2017 | 20174 | 2017Generator Sets | 2017Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4728 | 0.7537 | 0.0725 | 0.0009 | 0.0381 | 0.0350 | 77.9 | 0.0065 | 120 | 4 |
| 2017 | 20176 | 2017Graders | 2017Graders175 | Graders | 175 | 0.41 | 0.7301 | 0.7435 | 0.1135 | 0.0014 | 0.0429 | 0.0395 | 123.9 | 0.0102 | 175 | 6 |
| 2017 | 20175 | 2017Off-Highway Tractors | 2017Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8122 | 0.5846 | 0.1697 | 0.0015 | 0.0677 | 0.0623 | 130.4 | 0.0153 | 175 | 5 |
| 2017 | 20177 | 2017Off-Highway Trucks | 2017Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5676 | 1.5080 | 0.1753 | 0.0027 | 0.0397 | 0.0365 | 272.3 | 0.0158 | 500 | 7 |
| 2017 | 20175 | 2017Other Construction Equipment | 2017Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5860 | 0.7804 | 0.0665 | 0.0012 | 0.0252 | 0.0232 | 106.5 | 0.0060 | 175 | 5 |
| 2017 | 20174 | 2017Other General Industrial Equipmen | 2017Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4307 | 0.3628 | 0.0811 | 0.0007 | 0.0404 | 0.0371 | 62.0 | 0.0073 | 120 | 4 |
| 2017 | 20175 | 2017Other Material Handling Equipment | 2017Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7173 | 0.7216 | 0.1146 | 0.0014 | 0.0445 | 0.0409 | 122.1 | 0.0103 | 175 | 5 |
| 2017 | 20175 | 2017Pavers | 2017Pavers175 | Pavers | 126 | 0.42 | 0.7653 | 0.5717 | 0.1443 | 0.0014 | 0.0582 | 0.0536 | 128.3 | 0.0130 | 175 | 5 |
| 2017 | 20175 | 2017Paving Equipment | 2017Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.5987 | 0.5095 | 0.1124 | 0.0011 | 0.0458 | 0.0421 | 101.0 | 0.0101 | 175 | 5 |
| 2017 | 20171 | 2017Plate Compactors | 2017Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0379 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2017 | 20171 | 2017Pressure Washers | 2017Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0310 | 0.0430 | 0.0060 | 0.0001 | 0.0022 | 0.0020 | 4.9 | 0.0005 | 15 | 1 |
| 2017 | 20174 | 2017Pumps | 2017Pumps120 | Pumps | 84 | 0.74 | 0.4802 | 0.7537 | 0.0760 | 0.0009 | 0.0400 | 0.0368 | 77.9 | 0.0069 | 120 | 4 |
| 2017 | 20174 | 2017Rollers | 2017Rollers120 | Rollers | 81 | 0.38 | 0.3944 | 0.3732 | 0.0736 | 0.0007 | 0.0378 | 0.0348 | 59.0 | 0.0066 | 120 | 4 |
| 2017 | 20175 | 2017Rough Terrain Forklifts | 2017Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4203 | 0.4321 | 0.0660 | 0.0007 | 0.0319 | 0.0294 | 62.4 | 0.0060 | 120 | 5 |
| 2017 | 20176 | 2017Rubber Tired Dozers | 2017Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 1.0972 | 1.0569 | 0.2660 | 0.0026 | 0.0849 | 0.0781 | 264.9 | 0.0240 | 500 | 6 |
| 2017 | 20176 | 2017Rubber Tired Loaders | 2017Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3290 | 0.7460 | 0.1000 | 0.0017 | 0.0272 | 0.0250 | 149.0 | 0.0090 | 250 | 6 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 20177 | 2017Scrapers | 2017Scrapers500 | Scrapers | 362 | 0.48 | 0.9602 | 1.7238 | 0.2594 | 0.0032 | 0.0777 | 0.0715 | 321.4 | 0.0234 | 500 | 7 |
| 2017 | 20171 | 2017Signal Boards | 2017Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0542 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2017 | 20173 | 2017Skid Steer Loaders | 2017Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2686 | 0.2863 | 0.0268 | 0.0005 | 0.0114 | 0.0105 | 42.8 | 0.0024 | 120 | 3 |
| 2017 | 20176 | 2017Surfacing Equipment | 2017Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.5248 | 0.7896 | 0.1186 | 0.0022 | 0.0385 | 0.0355 | 221.2 | 0.0107 | 500 | 6 |
| 2017 | 20173 | 2017Sweepers/Scrubbers | 2017Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.4996 | 0.3505 | 0.0701 | 0.0009 | 0.0336 | 0.0309 | 75.0 | 0.0063 | 120 | 3 |
| 2017 | 20174 | 2017Tractors/Loaders/Backhoes | 2017Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3442 | 0.4397 | 0.0477 | 0.0006 | 0.0217 | 0.0199 | 51.7 | 0.0043 | 120 | 4 |
| 2017 | 20174 | 2017Trenchers | 2017Trenchers120 | Trenchers | 81 | 0.5 | 0.4529 | 0.4911 | 0.1018 | 0.0008 | 0.0514 | 0.0473 | 64.9 | 0.0092 | 120 | 4 |
| 2017 | 20172 | 2017Welders | 2017Welders50 | Welders | 46 | 0.45 | 0.2408 | 0.2282 | 0.0638 | 0.0003 | 0.0162 | 0.0149 | 26.0 | 0.0058 | 50 | 2 |
| 2018 | 20183 | 2018Aerial Lifts | 2018Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2319 | 0.2153 | 0.0327 | 0.0004 | 0.0170 | 0.0156 | 38.1 | 0.0029 | 120 | 3 |
| 2018 | 20184 | 2018Air Compressors | 2018Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3097 | 0.3962 | 0.0504 | 0.0006 | 0.0255 | 0.0235 | 47.0 | 0.0045 | 120 | 4 |
| 2018 | 20186 | 2018Bore/Drill Rigs | 2018Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3426 | 0.9310 | 0.0538 | 0.0021 | 0.0068 | 0.0063 | 188.1 | 0.0049 | 250 | 6 |
| 2018 | 20181 | 2018Cement and Mortar Mixers | 2018Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0522 | 0.0074 | 0.0001 | 0.0018 | 0.0017 | 6.3 | 0.0007 | 15 | 1 |
| 2018 | 20184 | 2018Concrete/Industrial Saws | 2018Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4661 | 0.6257 | 0.0650 | 0.0009 | 0.0335 | 0.0308 | 74.1 | 0.0059 | 120 | 4 |
| 2018 | 20186 | 2018Cranes | 2018Cranes250 | Cranes | 226 | 0.29 | 0.2521 | 0.5924 | 0.0787 | 0.0013 | 0.0212 | 0.0195 | 112.2 | 0.0071 | 250 | 6 |
| 2018 | 20186 | 2018Crawler Tractors | 2018Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4179 | 0.8084 | 0.1333 | 0.0019 | 0.0385 | 0.0355 | 166.1 | 0.0120 | 250 | 6 |
| 2018 | 20184 | 2018Crushing/Proc. Equipment | 2018Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5506 | 0.7016 | 0.0849 | 0.0010 | 0.0416 | 0.0383 | 83.1 | 0.0077 | 120 | 4 |
| 2018 | 20181 | 2018Dumpers/Tenders | 2018Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0314 | 0.0630 | 0.0092 | 0.0001 | 0.0023 | 0.0021 | 7.6 | 0.0008 | 25 | 1 |
| 2018 | 20185 | 2018Excavators | 2018Excavators175 | Excavators | 163 | 0.38 | 0.6641 | 0.5872 | 0.0824 | 0.0013 | 0.0264 | 0.0243 | 112.2 | 0.0074 | 175 | 5 |
| 2018 | 20184 | 2018Forklifts | 2018Forklifts120 | Forklifts | 89 | 0.2 | 0.2118 | 0.1884 | 0.0265 | 0.0004 | 0.0108 | 0.0099 | 31.2 | 0.0024 | 120 | 4 |
| 2018 | 20184 | 2018Generator Sets | 2018Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4694 | 0.6578 | 0.0642 | 0.0009 | 0.0333 | 0.0306 | 77.9 | 0.0058 | 120 | 4 |
| 2018 | 20186 | 2018Graders | 2018Graders175 | Graders | 175 | 0.41 | 0.7294 | 0.6485 | 0.1059 | 0.0014 | 0.0385 | 0.0354 | 123.9 | 0.0096 | 175 | 6 |
| 2018 | 20185 | 2018Off-Highway Tractors | 2018Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8085 | 0.5131 | 0.1614 | 0.0015 | 0.0632 | 0.0581 | 130.4 | 0.0146 | 175 | 5 |
| 2018 | 20187 | 2018Off-Highway Trucks | 2018Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5578 | 1.3404 | 0.1656 | 0.0027 | 0.0351 | 0.0323 | 272.3 | 0.0149 | 500 | 7 |
| 2018 | 20185 | 2018Other Construction Equipment | 2018Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5859 | 0.6848 | 0.0608 | 0.0012 | 0.0218 | 0.0200 | 106.5 | 0.0055 | 175 | 5 |
| 2018 | 20184 | 2018Other General Industrial Equipmen | 2018Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4277 | 0.3166 | 0.0732 | 0.0007 | 0.0350 | 0.0322 | 62.0 | 0.0066 | 120 | 4 |
| 2018 | 20185 | 2018Other Material Handling Equipment | 2018Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7171 | 0.6333 | 0.1050 | 0.0014 | 0.0389 | 0.0358 | 122.1 | 0.0095 | 175 | 5 |
| 2018 | 20185 | 2018Pavers | 2018Pavers175 | Pavers | 126 | 0.42 | 0.7632 | 0.5017 | 0.1365 | 0.0014 | 0.0539 | 0.0496 | 128.3 | 0.0123 | 175 | 5 |
| 2018 | 20185 | 2018Paving Equipment | 2018Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.5971 | 0.4471 | 0.1062 | 0.0011 | 0.0424 | 0.0390 | 101.0 | 0.0096 | 175 | 5 |
| 2018 | 20181 | 2018Plate Compactors | 2018Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0356 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2018 | 20181 | 2018Pressure Washers | 2018Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0308 | 0.0404 | 0.0059 | 0.0001 | 0.0021 | 0.0019 | 4.9 | 0.0005 | 15 | 1 |
| 2018 | 20184 | 2018Pumps | 2018Pumps120 | Pumps | 84 | 0.74 | 0.4767 | 0.6578 | 0.0676 | 0.0009 | 0.0350 | 0.0322 | 77.9 | 0.0061 | 120 | 4 |
| 2018 | 20184 | 2018Rollers | 2018Rollers120 | Rollers | 81 | 0.38 | 0.3919 | 0.3257 | 0.0680 | 0.0007 | 0.0341 | 0.0314 | 59.0 | 0.0061 | 120 | 4 |
| 2018 | 20185 | 2018Rough Terrain Forklifts | 2018Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4179 | 0.3792 | 0.0596 | 0.0007 | 0.0273 | 0.0251 | 62.4 | 0.0054 | 120 | 5 |
| 2018 | 20186 | 2018Rubber Tired Dozers | 2018Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 1.0338 | 0.9220 | 0.2531 | 0.0026 | 0.0787 | 0.0724 | 264.9 | 0.0228 | 500 | 6 |
| 2018 | 20186 | 2018Rubber Tired Loaders | 2018Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3237 | 0.6508 | 0.0946 | 0.0017 | 0.0244 | 0.0224 | 149.0 | 0.0085 | 250 | 6 |
| 2018 | 20187 | 2018Scrapers | 2018Scrapers500 | Scrapers | 362 | 0.48 | 0.9165 | 1.5323 | 0.2458 | 0.0032 | 0.0707 | 0.0650 | 321.4 | 0.0222 | 500 | 7 |
| 2018 | 20181 | 2018Signal Boards | 2018Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0510 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2018 | 20183 | 2018Skid Steer Loaders | 2018Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2680 | 0.2651 | 0.0248 | 0.0005 | 0.0095 | 0.0087 | 42.8 | 0.0022 | 120 | 3 |
| 2018 | 20186 | 2018Surfacing Equipment | 2018Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.5047 | 0.6888 | 0.1120 | 0.0022 | 0.0350 | 0.0322 | 221.2 | 0.0101 | 500 | 6 |
| 2018 | 20183 | 2018Sweepers/Scrubbers | 2018Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.4983 | 0.3245 | 0.0647 | 0.0009 | 0.0291 | 0.0267 | 75.0 | 0.0058 | 120 | 3 |
| 2018 | 20184 | 2018Tractors/Loaders/Backhoes | 2018Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3426 | 0.3837 | 0.0435 | 0.0006 | 0.0184 | 0.0169 | 51.7 | 0.0039 | 120 | 4 |
| 2018 | 20184 | 2018Trenchers | 2018Trenchers120 | Trenchers | 81 | 0.5 | 0.4498 | 0.4286 | 0.0959 | 0.0008 | 0.0477 | 0.0439 | 64.9 | 0.0087 | 120 | 4 |
| 2018 | 20182 | 2018Welders | 2018Welders50 | Welders | 46 | 0.45 | 0.2339 | 0.2145 | 0.0563 | 0.0003 | 0.0144 | 0.0132 | 26.0 | 0.0051 | 50 | 2 |
| 2019 | 20193 | 2019Aerial Lifts | 2019Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2304 | 0.1981 | 0.0288 | 0.0004 | 0.0146 | 0.0135 | 38.1 | 0.0026 | 120 | 3 |
| 2019 | 20194 | 2019Air Compressors | 2019Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3075 | 0.3384 | 0.0450 | 0.0006 | 0.0218 | 0.0201 | 47.0 | 0.0041 | 120 | 4 |
| 2019 | 20196 | 2019Bore/Drill Rigs | 2019Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3426 | 0.7948 | 0.0502 | 0.0021 | 0.0054 | 0.0049 | 188.1 | 0.0045 | 250 | 6 |
| 2019 | 20191 | 2019Cement and Mortar Mixers | 2019Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0489 | 0.0074 | 0.0001 | 0.0018 | 0.0017 | 6.3 | 0.0007 | 15 | 1 |
| 2019 | 20194 | 2019Concrete/Industrial Saws | 2019Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4633 | 0.5345 | 0.0579 | 0.0009 | 0.0288 | 0.0265 | 74.1 | 0.0052 | 120 | 4 |
| 2019 | 20196 | 2019Cranes | 2019Cranes250 | Cranes | 226 | 0.29 | 0.2478 | 0.5057 | 0.0745 | 0.0013 | 0.0190 | 0.0175 | 112.2 | 0.0067 | 250 | 6 |
| 2019 | 20196 | 2019Crawler Tractors | 2019Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4065 | 0.6901 | 0.1258 | 0.0019 | 0.0349 | 0.0321 | 166.1 | 0.0114 | 250 | 6 |
| 2019 | 20194 | 2019Crushing/Proc. Equipment | 2019Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5471 | 0.5993 | 0.0760 | 0.0010 | 0.0353 | 0.0325 | 83.1 | 0.0069 | 120 | 4 |
| 2019 | 20191 | 2019Dumpers/Tenders | 2019Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0314 | 0.0590 | 0.0092 | 0.0001 | 0.0022 | 0.0021 | 7.6 | 0.0008 | 25 | 1 |
| 2019 | 20195 | 2019Excavators | 2019Excavators175 | Excavators | 163 | 0.38 | 0.6638 | 0.5053 | 0.0759 | 0.0013 | 0.0227 | 0.0208 | 112.2 | 0.0068 | 175 | 5 |
| 2019 | 20194 | 2019Forklifts | 2019Forklifts120 | Forklifts | 89 | 0.2 | 0.2109 | 0.1609 | 0.0243 | 0.0004 | 0.0089 | 0.0082 | 31.2 | 0.0022 | 120 | 4 |
| 2019 | 20194 | 2019Generator Sets | 2019Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4663 | 0.5619 | 0.0564 | 0.0009 | 0.0287 | 0.0264 | 77.9 | 0.0051 | 120 | 4 |
| 2019 | 20196 | 2019Graders | 2019Graders175 | Graders | 175 | 0.41 | 0.7288 | 0.5536 | 0.0987 | 0.0014 | 0.0343 | 0.0315 | 123.9 | 0.0089 | 175 | 6 |
| 2019 | 20195 | 2019Off-Highway Tractors | 2019Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8053 | 0.4415 | 0.1533 | 0.0015 | 0.0588 | 0.0541 | 130.4 | 0.0138 | 175 | 5 |
| 2019 | 20197 | 2019Off-Highway Trucks | 2019Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5502 | 1.1393 | 0.1568 | 0.0027 | 0.0310 | 0.0285 | 272.3 | 0.0142 | 500 | 7 |
| 2019 | 20195 | 2019Other Construction Equipment | 2019Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5859 | 0.5893 | 0.0562 | 0.0012 | 0.0189 | 0.0174 | 106.5 | 0.0051 | 175 | 5 |
| 2019 | 20194 | 2019Other General Industrial Equipmen | 2019Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4250 | 0.2704 | 0.0658 | 0.0007 | 0.0298 | 0.0274 | 62.0 | 0.0059 | 120 | 4 |
| 2019 | 20195 | 2019Other Material Handling Equipment | 2019Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7172 | 0.5449 | 0.0972 | 0.0014 | 0.0342 | 0.0315 | 122.1 | 0.0088 | 175 | 5 |
| 2019 | 20195 | 2019Pavers | 2019Pavers175 | Pavers | 126 | 0.42 | 0.7615 | 0.4317 | 0.1290 | 0.0014 | 0.0498 | 0.0459 | 128.3 | 0.0116 | 175 | 5 |
| 2019 | 20195 | 2019Paving Equipment | 2019Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.5958 | 0.3847 | 0.1002 | 0.0011 | 0.0391 | 0.0360 | 101.0 | 0.0090 | 175 | 5 |
| 2019 | 20191 | 2019Plate Compactors | 2019Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0334 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2019 | 20191 | 2019Pressure Washers | 2019Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0307 | 0.0378 | 0.0057 | 0.0001 | 0.0019 | 0.0018 | 4.9 | 0.0005 | 15 | 1 |
| 2019 | 20194 | 2019Pumps | 2019Pumps120 | Pumps | 84 | 0.74 | 0.4736 | 0.5619 | 0.0596 | 0.0009 | 0.0302 | 0.0278 | 77.9 | 0.0054 | 120 | 4 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 20194 | 2019Rollers | 2019Rollers120 | Rollers | 81 | 0.38 | 0.3895 | 0.2782 | 0.0626 | 0.0007 | 0.0305 | 0.0280 | 59.0 | 0.0057 | 120 | 4 |
| 2019 | 20195 | 2019Rough Terrain Forklifts | 2019Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4158 | 0.3263 | 0.0539 | 0.0007 | 0.0231 | 0.0212 | 62.4 | 0.0049 | 120 | 5 |
| 2019 | 20196 | 2019Rubber Tired Dozers | 2019Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.9773 | 0.7870 | 0.2407 | 0.0026 | 0.0728 | 0.0670 | 264.9 | 0.0217 | 500 | 6 |
| 2019 | 20196 | 2019Rubber Tired Loaders | 2019Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3194 | 0.5556 | 0.0896 | 0.0017 | 0.0218 | 0.0200 | 149.0 | 0.0081 | 250 | 6 |
| 2019 | 20197 | 2019Scrapers | 2019Scrapers500 | Scrapers | 362 | 0.48 | 0.8785 | 1.3025 | 0.2330 | 0.0032 | 0.0643 | 0.0591 | 321.4 | 0.0210 | 500 | 7 |
| 2019 | 20191 | 2019Signal Boards | 2019Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0477 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2019 | 20193 | 2019Skid Steer Loaders | 2019Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2676 | 0.2439 | 0.0232 | 0.0005 | 0.0079 | 0.0072 | 42.8 | 0.0021 | 120 | 3 |
| 2019 | 20196 | 2019Surfacing Equipment | 2019Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.4875 | 0.5880 | 0.1061 | 0.0022 | 0.0317 | 0.0292 | 221.2 | 0.0096 | 500 | 6 |
| 2019 | 20193 | 2019Sweepers/Scrubbers | 2019Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.4973 | 0.2986 | 0.0600 | 0.0009 | 0.0250 | 0.0230 | 75.0 | 0.0054 | 120 | 3 |
| 2019 | 20194 | 2019Tractors/Loaders/Backhoes | 2019Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3413 | 0.3278 | 0.0398 | 0.0006 | 0.0154 | 0.0142 | 51.7 | 0.0036 | 120 | 4 |
| 2019 | 20194 | 2019Trenchers | 2019Trenchers120 | Trenchers | 81 | 0.5 | 0.4470 | 0.3661 | 0.0903 | 0.0008 | 0.0442 | 0.0406 | 64.9 | 0.0081 | 120 | 4 |
| 2019 | 20192 | 2019Welders | 2019Welders50 | Welders | 46 | 0.45 | 0.2271 | 0.2008 | 0.0490 | 0.0003 | 0.0126 | 0.0116 | 26.0 | 0.0044 | 50 | 2 |
| 2020 | 20203 | 2020Aerial Lifts | 2020Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2292 | 0.1808 | 0.0259 | 0.0004 | 0.0127 | 0.0117 | 38.1 | 0.0023 | 120 | 3 |
| 2020 | 20204 | 2020Air Compressors | 2020Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3058 | 0.2806 | 0.0408 | 0.0006 | 0.0188 | 0.0173 | 47.0 | 0.0037 | 120 | 4 |
| 2020 | 20206 | 2020Bore/Drill Rigs | 2020Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3426 | 0.6585 | 0.0474 | 0.0021 | 0.0044 | 0.0040 | 188.1 | 0.0043 | 250 | 6 |
| 2020 | 20201 | 2020Cement and Mortar Mixers | 2020Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0456 | 0.0074 | 0.0001 | 0.0018 | 0.0017 | 6.3 | 0.0007 | 15 | 1 |
| 2020 | 20204 | 2020Concrete/Industrial Saws | 2020Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4613 | 0.4432 | 0.0524 | 0.0009 | 0.0249 | 0.0229 | 74.1 | 0.0047 | 120 | 4 |
| 2020 | 20206 | 2020Cranes | 2020Cranes250 | Cranes | 226 | 0.29 | 0.2440 | 0.4190 | 0.0704 | 0.0013 | 0.0170 | 0.0157 | 112.2 | 0.0064 | 250 | 6 |
| 2020 | 20206 | 2020Crawler Tractors | 2020Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.3966 | 0.5718 | 0.1188 | 0.0019 | 0.0315 | 0.0290 | 166.1 | 0.0107 | 250 | 6 |
| 2020 | 20204 | 2020Crushing/Proc. Equipment | 2020Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5446 | 0.4970 | 0.0692 | 0.0010 | 0.0302 | 0.0278 | 83.1 | 0.0062 | 120 | 4 |
| 2020 | 20201 | 2020Dumpers/Tenders | 2020Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0314 | 0.0550 | 0.0092 | 0.0001 | 0.0022 | 0.0020 | 7.6 | 0.0008 | 25 | 1 |
| 2020 | 20205 | 2020Excavators | 2020Excavators175 | Excavators | 163 | 0.38 | 0.6637 | 0.4233 | 0.0703 | 0.0013 | 0.0195 | 0.0179 | 112.2 | 0.0063 | 175 | 5 |
| 2020 | 20204 | 2020Forklifts | 2020Forklifts120 | Forklifts | 89 | 0.2 | 0.2102 | 0.1334 | 0.0225 | 0.0004 | 0.0074 | 0.0068 | 31.2 | 0.0020 | 120 | 4 |
| 2020 | 20204 | 2020Generator Sets | 2020Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4641 | 0.4659 | 0.0506 | 0.0009 | 0.0250 | 0.0230 | 77.9 | 0.0046 | 120 | 4 |
| 2020 | 20206 | 2020Graders | 2020Graders175 | Graders | 175 | 0.41 | 0.7282 | 0.4587 | 0.0918 | 0.0014 | 0.0303 | 0.0279 | 123.9 | 0.0083 | 175 | 6 |
| 2020 | 20205 | 2020Off-Highway Tractors | 2020Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8025 | 0.3699 | 0.1455 | 0.0015 | 0.0547 | 0.0503 | 130.4 | 0.0131 | 175 | 5 |
| 2020 | 20207 | 2020Off-Highway Trucks | 2020Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5446 | 0.9383 | 0.1488 | 0.0027 | 0.0273 | 0.0251 | 272.3 | 0.0134 | 500 | 7 |
| 2020 | 20205 | 2020Other Construction Equipment | 2020Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5859 | 0.4937 | 0.0524 | 0.0012 | 0.0164 | 0.0151 | 106.5 | 0.0047 | 175 | 5 |
| 2020 | 20204 | 2020Other General Industrial Equipmen | 2020Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4232 | 0.2243 | 0.0602 | 0.0007 | 0.0256 | 0.0236 | 62.0 | 0.0054 | 120 | 4 |
| 2020 | 20205 | 2020Other Material Handling Equipment | 2020Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7176 | 0.4565 | 0.0907 | 0.0014 | 0.0301 | 0.0277 | 122.1 | 0.0082 | 175 | 5 |
| 2020 | 20205 | 2020Pavers | 2020Pavers175 | Pavers | 126 | 0.42 | 0.7599 | 0.3617 | 0.1217 | 0.0014 | 0.0459 | 0.0422 | 128.3 | 0.0110 | 175 | 5 |
| 2020 | 20205 | 2020Paving Equipment | 2020Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.5945 | 0.3223 | 0.0944 | 0.0011 | 0.0360 | 0.0331 | 101.0 | 0.0085 | 175 | 5 |
| 2020 | 20201 | 2020Plate Compactors | 2020Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0311 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2020 | 20201 | 2020Pressure Washers | 2020Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0305 | 0.0353 | 0.0056 | 0.0001 | 0.0018 | 0.0017 | 4.9 | 0.0005 | 15 | 1 |
| 2020 | 20204 | 2020Pumps | 2020Pumps120 | Pumps | 84 | 0.74 | 0.4713 | 0.4659 | 0.0537 | 0.0009 | 0.0263 | 0.0242 | 77.9 | 0.0048 | 120 | 4 |
| 2020 | 20204 | 2020Rollers | 2020Rollers120 | Rollers | 81 | 0.38 | 0.3873 | 0.2307 | 0.0576 | 0.0007 | 0.0270 | 0.0249 | 59.0 | 0.0052 | 120 | 4 |
| 2020 | 20205 | 2020Rough Terrain Forklifts | 2020Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4142 | 0.2734 | 0.0495 | 0.0007 | 0.0197 | 0.0181 | 62.4 | 0.0045 | 120 | 5 |
| 2020 | 20206 | 2020Rubber Tired Dozers | 2020Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.9276 | 0.6521 | 0.2291 | 0.0026 | 0.0673 | 0.0619 | 264.9 | 0.0207 | 500 | 6 |
| 2020 | 20206 | 2020Rubber Tired Loaders | 2020Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3159 | 0.4603 | 0.0848 | 0.0017 | 0.0194 | 0.0179 | 149.0 | 0.0077 | 250 | 6 |
| 2020 | 20207 | 2020Scrapers | 2020Scrapers500 | Scrapers | 362 | 0.48 | 0.8455 | 1.0726 | 0.2211 | 0.0032 | 0.0584 | 0.0537 | 321.4 | 0.0200 | 500 | 7 |
| 2020 | 20201 | 2020Signal Boards | 2020Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0445 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2020 | 20203 | 2020Skid Steer Loaders | 2020Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2673 | 0.2227 | 0.0218 | 0.0005 | 0.0064 | 0.0059 | 42.8 | 0.0020 | 120 | 3 |
| 2020 | 20206 | 2020Surfacing Equipment | 2020Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.4728 | 0.4872 | 0.1008 | 0.0022 | 0.0288 | 0.0265 | 221.2 | 0.0091 | 500 | 6 |
| 2020 | 20203 | 2020Sweepers/Scrubbers | 2020Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.4959 | 0.2726 | 0.0555 | 0.0009 | 0.0210 | 0.0193 | 75.0 | 0.0050 | 120 | 3 |
| 2020 | 20204 | 2020Tractors/Loaders/Backhoes | 2020Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3402 | 0.2718 | 0.0366 | 0.0006 | 0.0129 | 0.0119 | 51.7 | 0.0033 | 120 | 4 |
| 2020 | 20204 | 2020Trenchers | 2020Trenchers120 | Trenchers | 81 | 0.5 | 0.4443 | 0.3036 | 0.0849 | 0.0008 | 0.0408 | 0.0375 | 64.9 | 0.0077 | 120 | 4 |
| 2020 | 20202 | 2020Welders | 2020Welders50 | Welders | 46 | 0.45 | 0.2219 | 0.1871 | 0.0435 | 0.0003 | 0.0110 | 0.0102 | 26.0 | 0.0039 | 50 | 2 |
| 2021 | 20213 | 2021Aerial Lifts | 2021Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0021 | 120 | 3 |
| 2021 | 20214 | 2021Air Compressors | 2021Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0033 | 120 | 4 |
| 2021 | 20216 | 2021Bore/Drill Rigs | 2021Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0041 | 250 | 6 |
| 2021 | 20211 | 2021Cement and Mortar Mixers | 2021Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2021 | 20214 | 2021Concrete/Industrial Saws | 2021Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0044 | 120 | 4 |
| 2021 | 20216 | 2021Cranes | 2021Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0060 | 250 | 6 |
| 2021 | 20216 | 2021Crawler Tractors | 2021Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0101 | 250 | 6 |
| 2021 | 20214 | 2021Crushing/Proc. Equipment | 2021Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0058 | 120 | 4 |
| 2021 | 20211 | 2021Dumpers/Tenders | 2021Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2021 | 20215 | 2021Excavators | 2021Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0059 | 175 | 5 |
| 2021 | 20214 | 2021Forklifts | 2021Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0019 | 120 | 4 |
| 2021 | 20214 | 2021Generator Sets | 2021Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0041 | 120 | 4 |
| 2021 | 20216 | 2021Graders | 2021Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0077 | 175 | 6 |
| 2021 | 20215 | 2021Off-Highway Tractors | 2021Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0124 | 175 | 5 |
| 2021 | 20217 | 2021Off-Highway Trucks | 2021Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0128 | 500 | 7 |
| 2021 | 20215 | 2021Other Construction Equipment | 2021Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0044 | 175 | 5 |
| 2021 | 20214 | 2021Other General Industrial Equipmen | 2021Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0050 | 120 | 4 |
| 2021 | 20215 | 2021Other Material Handling Equipment | 2021Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0075 | 175 | 5 |
| 2021 | 20215 | 2021Pavers | 2021Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0104 | 175 | 5 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 20215 | 2021Paving Equipment | 2021Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0080 | 175 | 5 |
| 2021 | 20211 | 2021Plate Compactors | 2021Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2021 | 20211 | 2021Pressure Washers | 2021Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2021 | 20214 | 2021Pumps | 2021Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0044 | 120 | 4 |
| 2021 | 20214 | 2021Rollers | 2021Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0048 | 120 | 4 |
| 2021 | 20215 | 2021Rough Terrain Forklifts | 2021Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0042 | 120 | 5 |
| 2021 | 20216 | 2021Rubber Tired Dozers | 2021Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0197 | 500 | 6 |
| 2021 | 20216 | 2021Rubber Tired Loaders | 2021Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0073 | 250 | 6 |
| 2021 | 20217 | 2021Scrapers | 2021Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0190 | 500 | 7 |
| 2021 | 20211 | 2021Signal Boards | 2021Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2021 | 20213 | 2021Skid Steer Loaders | 2021Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0019 | 120 | 3 |
| 2021 | 20216 | 2021Surfacing Equipment | 2021Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0087 | 500 | 6 |
| 2021 | 20213 | 2021Sweepers/Scrubbers | 2021Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0046 | 120 | 3 |
| 2021 | 20214 | 2021Tractors/Loaders/Backhoes | 2021Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0031 | 120 | 4 |
| 2021 | 20214 | 2021Trenchers | 2021Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0072 | 120 | 4 |
| 2021 | 20212 | 2021Welders | 2021Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0035 | 50 | 2 |
| 2022 | 20223 | 2022Aerial Lifts | 2022Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0020 | 120 | 3 |
| 2022 | 20224 | 2022Air Compressors | 2022Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0031 | 120 | 4 |
| 2022 | 20226 | 2022Bore/Drill Rigs | 2022Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0040 | 250 | 6 |
| 2022 | 20221 | 2022Cement and Mortar Mixers | 2022Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2022 | 20224 | 2022Concrete/Industrial Saws | 2022Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0040 | 120 | 4 |
| 2022 | 20226 | 2022Cranes | 2022Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0057 | 250 | 6 |
| 2022 | 20226 | 2022Crawler Tractors | 2022Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0096 | 250 | 6 |
| 2022 | 20224 | 2022Crushing/Proc. Equipment | 2022Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0054 | 120 | 4 |
| 2022 | 20221 | 2022Dumpers/Tenders | 2022Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2022 | 20225 | 2022Excavators | 2022Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0055 | 175 | 5 |
| 2022 | 20224 | 2022Forklifts | 2022Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0018 | 120 | 4 |
| 2022 | 20224 | 2022Generator Sets | 2022Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0038 | 120 | 4 |
| 2022 | 20226 | 2022Graders | 2022Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0072 | 175 | 6 |
| 2022 | 20225 | 2022Off-Highway Tractors | 2022Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0118 | 175 | 5 |
| 2022 | 20227 | 2022Off-Highway Trucks | 2022Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0122 | 500 | 7 |
| 2022 | 20225 | 2022Other Construction Equipment | 2022Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0041 | 175 | 5 |
| 2022 | 20224 | 2022Other General Industrial Equipmen | 2022Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0047 | 120 | 4 |
| 2022 | 20225 | 2022Other Material Handling Equipment | 2022Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0071 | 175 | 5 |
| 2022 | 20225 | 2022Pavers | 2022Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0098 | 175 | 5 |
| 2022 | 20225 | 2022Paving Equipment | 2022Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0075 | 175 | 5 |
| 2022 | 20221 | 2022Plate Compactors | 2022Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2022 | 20221 | 2022Pressure Washers | 2022Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2022 | 20224 | 2022Pumps | 2022Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0040 | 120 | 4 |
| 2022 | 20224 | 2022Rollers | 2022Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0044 | 120 | 4 |
| 2022 | 20225 | 2022Rough Terrain Forklifts | 2022Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0039 | 120 | 5 |
| 2022 | 20226 | 2022Rubber Tired Dozers | 2022Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0188 | 500 | 6 |
| 2022 | 20226 | 2022Rubber Tired Loaders | 2022Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0069 | 250 | 6 |
| 2022 | 20227 | 2022Scrapers | 2022Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0181 | 500 | 7 |
| 2022 | 20221 | 2022Signal Boards | 2022Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2022 | 20223 | 2022Skid Steer Loaders | 2022Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0018 | 120 | 3 |
| 2022 | 20226 | 2022Surfacing Equipment | 2022Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0083 | 500 | 6 |
| 2022 | 20223 | 2022Sweepers/Scrubbers | 2022Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0043 | 120 | 3 |
| 2022 | 20224 | 2022Tractors/Loaders/Backhoes | 2022Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0029 | 120 | 4 |
| 2022 | 20224 | 2022Trenchers | 2022Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0068 | 120 | 4 |
| 2022 | 20222 | 2022Welders | 2022Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0032 | 50 | 2 |
| 2023 | 20233 | 2023Aerial Lifts | 2023Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0018 | 120 | 3 |
| 2023 | 20234 | 2023Air Compressors | 2023Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0029 | 120 | 4 |
| 2023 | 20236 | 2023Bore/Drill Rigs | 2023Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2023 | 20231 | 2023Cement and Mortar Mixers | 2023Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2023 | 20234 | 2023Concrete/Industrial Saws | 2023Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0038 | 120 | 4 |
| 2023 | 20236 | 2023Cranes | 2023Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0054 | 250 | 6 |
| 2023 | 20236 | 2023Crawler Tractors | 2023Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0091 | 250 | 6 |
| 2023 | 20234 | 2023Crushing/Proc. Equipment | 2023Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0051 | 120 | 4 |
| 2023 | 20231 | 2023Dumpers/Tenders | 2023Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2023 | 20235 | 2023Excavators | 2023Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0052 | 175 | 5 |
| 2023 | 20234 | 2023Forklifts | 2023Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0017 | 120 | 4 |
| 2023 | 20234 | 2023Generator Sets | 2023Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0035 | 120 | 4 |
| 2023 | 20236 | 2023Graders | 2023Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0067 | 175 | 6 |
| 2023 | 20235 | 2023Off-Highway Tractors | 2023Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0112 | 175 | 5 |
| 2023 | 20237 | 2023Off-Highway Trucks | 2023Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0116 | 500 | 7 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 20235 | 2023Other Construction Equipment | 2023Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0039 | 175 | 5 |
| 2023 | 20234 | 2023Other General Industrial Equipmen | 2023Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0044 | 120 | 4 |
| 2023 | 20235 | 2023Other Material Handling Equipment | 2023Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0067 | 175 | 5 |
| 2023 | 20235 | 2023Pavers | 2023Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0092 | 175 | 5 |
| 2023 | 20235 | 2023Paving Equipment | 2023Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0071 | 175 | 5 |
| 2023 | 20231 | 2023Plate Compactors | 2023Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2023 | 20231 | 2023Pressure Washers | 2023Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2023 | 20234 | 2023Pumps | 2023Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0038 | 120 | 4 |
| 2023 | 20234 | 2023Rollers | 2023Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0041 | 120 | 4 |
| 2023 | 20235 | 2023Rough Terrain Forklifts | 2023Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0037 | 120 | 5 |
| 2023 | 20236 | 2023Rubber Tired Dozers | 2023Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0179 | 500 | 6 |
| 2023 | 20236 | 2023Rubber Tired Loaders | 2023Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0065 | 250 | 6 |
| 2023 | 20237 | 2023Scrapers | 2023Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0173 | 500 | 7 |
| 2023 | 20231 | 2023Signal Boards | 2023Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2023 | 20233 | 2023Skid Steer Loaders | 2023Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0017 | 120 | 3 |
| 2023 | 20236 | 2023Surfacing Equipment | 2023Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0079 | 500 | 6 |
| 2023 | 20233 | 2023Sweepers/Scrubbers | 2023Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0040 | 120 | 3 |
| 2023 | 20234 | 2023Tractors/Loaders/Backhoes | 2023Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0027 | 120 | 4 |
| 2023 | 20234 | 2023Trenchers | 2023Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0064 | 120 | 4 |
| 2023 | 20232 | 2023Welders | 2023Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0029 | 50 | 2 |
| 2024 | 20243 | 2024Aerial Lifts | 2024Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0017 | 120 | 3 |
| 2024 | 20244 | 2024Air Compressors | 2024Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0028 | 120 | 4 |
| 2024 | 20246 | 2024Bore/Drill Rigs | 2024Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2024 | 20241 | 2024Cement and Mortar Mixers | 2024Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2024 | 20244 | 2024Concrete/Industrial Saws | 2024Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0035 | 120 | 4 |
| 2024 | 20246 | 2024Cranes | 2024Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0051 | 250 | 6 |
| 2024 | 20246 | 2024Crawler Tractors | 2024Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0087 | 250 | 6 |
| 2024 | 20244 | 2024Crushing/Proc. Equipment | 2024Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0048 | 120 | 4 |
| 2024 | 20241 | 2024Dumpers/Tenders | 2024Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2024 | 20245 | 2024Excavators | 2024Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0049 | 175 | 5 |
| 2024 | 20244 | 2024Forklifts | 2024Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0016 | 120 | 4 |
| 2024 | 20244 | 2024Generator Sets | 2024Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2024 | 20246 | 2024Graders | 2024Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0063 | 175 | 6 |
| 2024 | 20245 | 2024Off-Highway Tractors | 2024Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0106 | 175 | 5 |
| 2024 | 20247 | 2024Off-Highway Trucks | 2024Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0111 | 500 | 7 |
| 2024 | 20245 | 2024Other Construction Equipment | 2024Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0037 | 175 | 5 |
| 2024 | 20244 | 2024Other General Industrial Equipmen | 2024Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0041 | 120 | 4 |
| 2024 | 20245 | 2024Other Material Handling Equipment | 2024Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0063 | 175 | 5 |
| 2024 | 20245 | 2024Pavers | 2024Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0086 | 175 | 5 |
| 2024 | 20245 | 2024Paving Equipment | 2024Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0066 | 175 | 5 |
| 2024 | 20241 | 2024Plate Compactors | 2024Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2024 | 20241 | 2024Pressure Washers | 2024Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2024 | 20244 | 2024Pumps | 2024Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0035 | 120 | 4 |
| 2024 | 20244 | 2024Rollers | 2024Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0038 | 120 | 4 |
| 2024 | 20245 | 2024Rough Terrain Forklifts | 2024Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0035 | 120 | 5 |
| 2024 | 20246 | 2024Rubber Tired Dozers | 2024Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0171 | 500 | 6 |
| 2024 | 20246 | 2024Rubber Tired Loaders | 2024Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0062 | 250 | 6 |
| 2024 | 20247 | 2024Scrapers | 2024Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0165 | 500 | 7 |
| 2024 | 20241 | 2024Signal Boards | 2024Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2024 | 20243 | 2024Skid Steer Loaders | 2024Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2024 | 20246 | 2024Surfacing Equipment | 2024Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0075 | 500 | 6 |
| 2024 | 20243 | 2024Sweepers/Scrubbers | 2024Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0038 | 120 | 3 |
| 2024 | 20244 | 2024Tractors/Loaders/Backhoes | 2024Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0026 | 120 | 4 |
| 2024 | 20244 | 2024Trenchers | 2024Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0060 | 120 | 4 |
| 2024 | 20242 | 2024Welders | 2024Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0027 | 50 | 2 |
| 2025 | 20253 | 2025Aerial Lifts | 2025Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2025 | 20254 | 2025Air Compressors | 2025Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2025 | 20256 | 2025Bore/Drill Rigs | 2025Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2025 | 20251 | 2025Cement and Mortar Mixers | 2025Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2025 | 20254 | 2025Concrete/Industrial Saws | 2025Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2025 | 20256 | 2025Cranes | 2025Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2025 | 20256 | 2025Crawler Tractors | 2025Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2025 | 20254 | 2025Crushing/Proc. Equipment | 2025Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2025 | 20251 | 2025Dumpers/Tenders | 2025Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2025 | 20255 | 2025Excavators | 2025Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2025 | 20254 | 2025Forklifts | 2025Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | 20254 | 2025Generator Sets | 2025Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2025 | 20256 | 2025Graders | 2025Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2025 | 20255 | 2025Off-Highway Tractors | 2025Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2025 | 20257 | 2025Off-Highway Trucks | 2025Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2025 | 20255 | 2025Other Construction Equipment | 2025Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2025 | 20254 | 2025Other General Industrial Equipmen | 2025Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2025 | 20255 | 2025Other Material Handling Equipment | 2025Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2025 | 20255 | 2025Pavers | 2025Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2025 | 20255 | 2025Paving Equipment | 2025Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2025 | 20251 | 2025Plate Compactors | 2025Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2025 | 20251 | 2025Pressure Washers | 2025Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2025 | 20254 | 2025Pumps | 2025Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2025 | 20254 | 2025Rollers | 2025Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2025 | 20255 | 2025Rough Terrain Forklifts | 2025Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2025 | 20256 | 2025Rubber Tired Dozers | 2025Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2025 | 20256 | 2025Rubber Tired Loaders | 2025Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2025 | 20257 | 2025Scrapers | 2025Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2025 | 20251 | 2025Signal Boards | 2025Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2025 | 20253 | 2025Skid Steer Loaders | 2025Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2025 | 20256 | 2025Surfacing Equipment | 2025Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2025 | 20253 | 2025Sweepers/Scrubbers | 2025Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2025 | 20254 | 2025Tractors/Loaders/Backhoes | 2025Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2025 | 20254 | 2025Trenchers | 2025Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2025 | 20252 | 2025Welders | 2025Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2026 | 20263 | 2026Aerial Lifts | 2026Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2026 | 20264 | 2026Air Compressors | 2026Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2026 | 20266 | 2026Bore/Drill Rigs | 2026Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2026 | 20261 | 2026Cement and Mortar Mixers | 2026Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2026 | 20264 | 2026Concrete/Industrial Saws | 2026Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2026 | 20266 | 2026Cranes | 2026Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2026 | 20266 | 2026Crawler Tractors | 2026Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2026 | 20264 | 2026Crushing/Proc. Equipment | 2026Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2026 | 20261 | 2026Dumpers/Tenders | 2026Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2026 | 20265 | 2026Excavators | 2026Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2026 | 20264 | 2026Forklifts | 2026Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2026 | 20264 | 2026Generator Sets | 2026Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2026 | 20266 | 2026Graders | 2026Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2026 | 20265 | 2026Off-Highway Tractors | 2026Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2026 | 20267 | 2026Off-Highway Trucks | 2026Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2026 | 20265 | 2026Other Construction Equipment | 2026Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2026 | 20264 | 2026Other General Industrial Equipmen | 2026Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2026 | 20265 | 2026Other Material Handling Equipment | 2026Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2026 | 20265 | 2026Pavers | 2026Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2026 | 20265 | 2026Paving Equipment | 2026Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2026 | 20261 | 2026Plate Compactors | 2026Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2026 | 20261 | 2026Pressure Washers | 2026Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2026 | 20264 | 2026Pumps | 2026Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2026 | 20264 | 2026Rollers | 2026Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2026 | 20265 | 2026Rough Terrain Forklifts | 2026Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2026 | 20266 | 2026Rubber Tired Dozers | 2026Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2026 | 20266 | 2026Rubber Tired Loaders | 2026Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2026 | 20267 | 2026Scrapers | 2026Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2026 | 20261 | 2026Signal Boards | 2026Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2026 | 20263 | 2026Skid Steer Loaders | 2026Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2026 | 20266 | 2026Surfacing Equipment | 2026Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2026 | 20263 | 2026Sweepers/Scrubbers | 2026Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2026 | 20264 | 2026Tractors/Loaders/Backhoes | 2026Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2026 | 20264 | 2026Trenchers | 2026Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2026 | 20262 | 2026Welders | 2026Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2027 | 20273 | 2027Aerial Lifts | 2027Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2027 | 20274 | 2027Air Compressors | 2027Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2027 | 20276 | 2027Bore/Drill Rigs | 2027Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2027 | 20271 | 2027Cement and Mortar Mixers | 2027Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2027 | 20274 | 2027Concrete/Industrial Saws | 2027Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2027 | 20276 | 2027Cranes | 2027Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2027 | 20276 | 2027Crawler Tractors | 2027Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | 20274 | 2027Crushing/Proc. Equipment | 2027Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2027 | 20271 | 2027Dumpers/Tenders | 2027Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2027 | 20275 | 2027Excavators | 2027Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2027 | 20274 | 2027Forklifts | 2027Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2027 | 20274 | 2027Generator Sets | 2027Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2027 | 20276 | 2027Graders | 2027Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2027 | 20275 | 2027Off-Highway Tractors | 2027Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2027 | 20277 | 2027Off-Highway Trucks | 2027Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2027 | 20275 | 2027Other Construction Equipment | 2027Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2027 | 20274 | 2027Other General Industrial Equipmen | 2027Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2027 | 20275 | 2027Other Material Handling Equipment | 2027Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2027 | 20275 | 2027Pavers | 2027Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2027 | 20275 | 2027Paving Equipment | 2027Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2027 | 20271 | 2027Plate Compactors | 2027Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2027 | 20271 | 2027Pressure Washers | 2027Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2027 | 20274 | 2027Pumps | 2027Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2027 | 20274 | 2027Rollers | 2027Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2027 | 20275 | 2027Rough Terrain Forklifts | 2027Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2027 | 20276 | 2027Rubber Tired Dozers | 2027Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2027 | 20276 | 2027Rubber Tired Loaders | 2027Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2027 | 20277 | 2027Scrapers | 2027Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2027 | 20271 | 2027Signal Boards | 2027Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2027 | 20273 | 2027Skid Steer Loaders | 2027Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2027 | 20276 | 2027Surfacing Equipment | 2027Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2027 | 20273 | 2027Sweepers/Scrubbers | 2027Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2027 | 20274 | 2027Tractors/Loaders/Backhoes | 2027Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2027 | 20274 | 2027Trenchers | 2027Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2027 | 20272 | 2027Welders | 2027Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2028 | 20283 | 2028Aerial Lifts | 2028Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2028 | 20284 | 2028Air Compressors | 2028Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2028 | 20286 | 2028Bore/Drill Rigs | 2028Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2028 | 20281 | 2028Cement and Mortar Mixers | 2028Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2028 | 20284 | 2028Concrete/Industrial Saws | 2028Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2028 | 20286 | 2028Cranes | 2028Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2028 | 20286 | 2028Crawler Tractors | 2028Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2028 | 20284 | 2028Crushing/Proc. Equipment | 2028Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2028 | 20281 | 2028Dumpers/Tenders | 2028Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2028 | 20285 | 2028Excavators | 2028Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2028 | 20284 | 2028Forklifts | 2028Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2028 | 20284 | 2028Generator Sets | 2028Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2028 | 20286 | 2028Graders | 2028Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2028 | 20285 | 2028Off-Highway Tractors | 2028Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2028 | 20287 | 2028Off-Highway Trucks | 2028Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2028 | 20285 | 2028Other Construction Equipment | 2028Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2028 | 20284 | 2028Other General Industrial Equipmen | 2028Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2028 | 20285 | 2028Other Material Handling Equipment | 2028Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2028 | 20285 | 2028Pavers | 2028Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2028 | 20285 | 2028Paving Equipment | 2028Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2028 | 20281 | 2028Plate Compactors | 2028Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2028 | 20281 | 2028Pressure Washers | 2028Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2028 | 20284 | 2028Pumps | 2028Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2028 | 20284 | 2028Rollers | 2028Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2028 | 20285 | 2028Rough Terrain Forklifts | 2028Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2028 | 20286 | 2028Rubber Tired Dozers | 2028Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2028 | 20286 | 2028Rubber Tired Loaders | 2028Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2028 | 20287 | 2028Scrapers | 2028Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2028 | 20281 | 2028Signal Boards | 2028Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2028 | 20283 | 2028Skid Steer Loaders | 2028Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2028 | 20286 | 2028Surfacing Equipment | 2028Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2028 | 20283 | 2028Sweepers/Scrubbers | 2028Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2028 | 20284 | 2028Tractors/Loaders/Backhoes | 2028Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2028 | 20284 | 2028Trenchers | 2028Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2028 | 20282 | 2028Welders | 2028Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2029 | 20293 | 2029Aerial Lifts | 2029Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2029 | 20294 | 2029Air Compressors | 2029Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2029 | 20296 | 2029Bore/Drill Rigs | 2029Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 20291 | 2029Cement and Mortar Mixers | 2029Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2029 | 20294 | 2029Concrete/Industrial Saws | 2029Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2029 | 20296 | 2029Cranes | 2029Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2029 | 20296 | 2029Crawler Tractors | 2029Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2029 | 20294 | 2029Crushing/Proc. Equipment | 2029Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2029 | 20291 | 2029Dumpers/Tenders | 2029Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2029 | 20295 | 2029Excavators | 2029Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2029 | 20294 | 2029Forklifts | 2029Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2029 | 20294 | 2029Generator Sets | 2029Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2029 | 20296 | 2029Graders | 2029Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2029 | 20295 | 2029Off-Highway Tractors | 2029Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2029 | 20297 | 2029Off-Highway Trucks | 2029Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2029 | 20295 | 2029Other Construction Equipment | 2029Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2029 | 20294 | 2029Other General Industrial Equipmen | 2029Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2029 | 20295 | 2029Other Material Handling Equipment | 2029Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2029 | 20295 | 2029Pavers | 2029Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2029 | 20295 | 2029Paving Equipment | 2029Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2029 | 20291 | 2029Plate Compactors | 2029Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2029 | 20291 | 2029Pressure Washers | 2029Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2029 | 20294 | 2029Pumps | 2029Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2029 | 20294 | 2029Rollers | 2029Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2029 | 20295 | 2029Rough Terrain Forklifts | 2029Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2029 | 20296 | 2029Rubber Tired Dozers | 2029Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2029 | 20296 | 2029Rubber Tired Loaders | 2029Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2029 | 20297 | 2029Scrapers | 2029Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2029 | 20291 | 2029Signal Boards | 2029Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2029 | 20293 | 2029Skid Steer Loaders | 2029Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2029 | 20296 | 2029Surfacing Equipment | 2029Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2029 | 20293 | 2029Sweepers/Scrubbers | 2029Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2029 | 20294 | 2029Tractors/Loaders/Backhoes | 2029Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2029 | 20294 | 2029Trenchers | 2029Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2029 | 20292 | 2029Welders | 2029Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2030 | 20303 | 2030Aerial Lifts | 2030Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2030 | 20304 | 2030Air Compressors | 2030Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2030 | 20306 | 2030Bore/Drill Rigs | 2030Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2030 | 20301 | 2030Cement and Mortar Mixers | 2030Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2030 | 20304 | 2030Concrete/Industrial Saws | 2030Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2030 | 20306 | 2030Cranes | 2030Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2030 | 20306 | 2030Crawler Tractors | 2030Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2030 | 20304 | 2030Crushing/Proc. Equipment | 2030Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2030 | 20301 | 2030Dumpers/Tenders | 2030Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2030 | 20305 | 2030Excavators | 2030Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2030 | 20304 | 2030Forklifts | 2030Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2030 | 20304 | 2030Generator Sets | 2030Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2030 | 20306 | 2030Graders | 2030Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2030 | 20305 | 2030Off-Highway Tractors | 2030Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2030 | 20307 | 2030Off-Highway Trucks | 2030Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2030 | 20305 | 2030Other Construction Equipment | 2030Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2030 | 20304 | 2030Other General Industrial Equipmen | 2030Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2030 | 20305 | 2030Other Material Handling Equipment | 2030Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2030 | 20305 | 2030Pavers | 2030Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2030 | 20305 | 2030Paving Equipment | 2030Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2030 | 20301 | 2030Plate Compactors | 2030Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2030 | 20301 | 2030Pressure Washers | 2030Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2030 | 20304 | 2030Pumps | 2030Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2030 | 20304 | 2030Rollers | 2030Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2030 | 20305 | 2030Rough Terrain Forklifts | 2030Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2030 | 20306 | 2030Rubber Tired Dozers | 2030Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2030 | 20306 | 2030Rubber Tired Loaders | 2030Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2030 | 20307 | 2030Scrapers | 2030Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2030 | 20301 | 2030Signal Boards | 2030Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2030 | 20303 | 2030Skid Steer Loaders | 2030Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2030 | 20306 | 2030Surfacing Equipment | 2030Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2030 | 20303 | 2030Sweepers/Scrubbers | 2030Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2030 | 20304 | 2030Tractors/Loaders/Backhoes | 2030Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2030 | 20304 | 2030Trenchers | 2030Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 20302 | 2030Welders | 2030Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2031 | 20313 | 2031Aerial Lifts | 2031Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2031 | 20314 | 2031Air Compressors | 2031Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2031 | 20316 | 2031Bore/Drill Rigs | 2031Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2031 | 20311 | 2031Cement and Mortar Mixers | 2031Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2031 | 20314 | 2031Concrete/Industrial Saws | 2031Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2031 | 20316 | 2031Cranes | 2031Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2031 | 20316 | 2031Crawler Tractors | 2031Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2031 | 20314 | 2031Crushing/Proc. Equipment | 2031Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2031 | 20311 | 2031Dumpers/Tenders | 2031Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2031 | 20315 | 2031Excavators | 2031Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2031 | 20314 | 2031Forklifts | 2031Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2031 | 20314 | 2031Generator Sets | 2031Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2031 | 20316 | 2031Graders | 2031Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2031 | 20315 | 2031Off-Highway Tractors | 2031Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2031 | 20317 | 2031Off-Highway Trucks | 2031Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2031 | 20315 | 2031Other Construction Equipment | 2031Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2031 | 20314 | 2031Other General Industrial Equipmen | 2031Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2031 | 20315 | 2031Other Material Handling Equipment | 2031Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2031 | 20315 | 2031Pavers | 2031Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2031 | 20315 | 2031Paving Equipment | 2031Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2031 | 20311 | 2031Plate Compactors | 2031Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2031 | 20311 | 2031Pressure Washers | 2031Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2031 | 20314 | 2031Pumps | 2031Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2031 | 20314 | 2031Rollers | 2031Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2031 | 20315 | 2031Rough Terrain Forklifts | 2031Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2031 | 20316 | 2031Rubber Tired Dozers | 2031Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2031 | 20316 | 2031Rubber Tired Loaders | 2031Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2031 | 20317 | 2031Scrapers | 2031Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2031 | 20311 | 2031Signal Boards | 2031Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2031 | 20313 | 2031Skid Steer Loaders | 2031Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2031 | 20316 | 2031Surfacing Equipment | 2031Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2031 | 20313 | 2031Sweepers/Scrubbers | 2031Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2031 | 20314 | 2031Tractors/Loaders/Backhoes | 2031Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2031 | 20314 | 2031Trenchers | 2031Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2031 | 20312 | 2031Welders | 2031Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2033 | 20333 | 2033Aerial Lifts | 2033Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2033 | 20334 | 2033Air Compressors | 2033Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2033 | 20336 | 2033Bore/Drill Rigs | 2033Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2033 | 20331 | 2033Cement and Mortar Mixers | 2033Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2033 | 20334 | 2033Concrete/Industrial Saws | 2033Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2033 | 20336 | 2033Cranes | 2033Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2033 | 20336 | 2033Crawler Tractors | 2033Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2033 | 20334 | 2033Crushing/Proc. Equipment | 2033Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2033 | 20331 | 2033Dumpers/Tenders | 2033Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2033 | 20335 | 2033Excavators | 2033Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2033 | 20334 | 2033Forklifts | 2033Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2033 | 20334 | 2033Generator Sets | 2033Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2033 | 20336 | 2033Graders | 2033Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2033 | 20335 | 2033Off-Highway Tractors | 2033Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2033 | 20337 | 2033Off-Highway Trucks | 2033Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2033 | 20335 | 2033Other Construction Equipment | 2033Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2033 | 20334 | 2033Other General Industrial Equipmen | 2033Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2033 | 20335 | 2033Other Material Handling Equipment | 2033Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2033 | 20335 | 2033Pavers | 2033Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2033 | 20335 | 2033Paving Equipment | 2033Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2033 | 20331 | 2033Plate Compactors | 2033Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2033 | 20331 | 2033Pressure Washers | 2033Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2033 | 20334 | 2033Pumps | 2033Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2033 | 20334 | 2033Rollers | 2033Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2033 | 20335 | 2033Rough Terrain Forklifts | 2033Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2033 | 20336 | 2033Rubber Tired Dozers | 2033Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2033 | 20336 | 2033Rubber Tired Loaders | 2033Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2033 | 20337 | 2033Scrapers | 2033Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2033 | 20331 | 2033Signal Boards | 2033Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2033 | 20333 | 2033Skid Steer Loaders | 2033Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 20336 | 2033Surfacing Equipment | 2033Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2033 | 20333 | 2033Sweepers/Scrubbers | 2033Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2033 | 20334 | 2033Tractors/Loaders/Backhoes | 2033Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2033 | 20334 | 2033Trenchers | 2033Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2033 | 20332 | 2033Welders | 2033Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2035 | 20353 | 2035Aerial Lifts | 2035Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2035 | 20354 | 2035Air Compressors | 2035Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2035 | 20356 | 2035Bore/Drill Rigs | 2035Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2035 | 20351 | 2035Cement and Mortar Mixers | 2035Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2035 | 20354 | 2035Concrete/Industrial Saws | 2035Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2035 | 20356 | 2035Cranes | 2035Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2035 | 20356 | 2035Crawler Tractors | 2035Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2035 | 20354 | 2035Crushing/Proc. Equipment | 2035Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2035 | 20351 | 2035Dumpers/Tenders | 2035Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2035 | 20355 | 2035Excavators | 2035Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2035 | 20354 | 2035Forklifts | 2035Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2035 | 20354 | 2035Generator Sets | 2035Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2035 | 20356 | 2035Graders | 2035Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2035 | 20355 | 2035Off-Highway Tractors | 2035Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2035 | 20357 | 2035Off-Highway Trucks | 2035Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2035 | 20355 | 2035Other Construction Equipment | 2035Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2035 | 20354 | 2035Other General Industrial Equipmen | 2035Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2035 | 20355 | 2035Other Material Handling Equipment | 2035Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2035 | 20355 | 2035Pavers | 2035Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2035 | 20355 | 2035Paving Equipment | 2035Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2035 | 20351 | 2035Plate Compactors | 2035Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2035 | 20351 | 2035Pressure Washers | 2035Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2035 | 20354 | 2035Pumps | 2035Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2035 | 20354 | 2035Rollers | 2035Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2035 | 20355 | 2035Rough Terrain Forklifts | 2035Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2035 | 20356 | 2035Rubber Tired Dozers | 2035Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2035 | 20356 | 2035Rubber Tired Loaders | 2035Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2035 | 20357 | 2035Scrapers | 2035Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2035 | 20351 | 2035Signal Boards | 2035Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2035 | 20353 | 2035Skid Steer Loaders | 2035Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2035 | 20356 | 2035Surfacing Equipment | 2035Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2035 | 20353 | 2035Sweepers/Scrubbers | 2035Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2035 | 20354 | 2035Tractors/Loaders/Backhoes | 2035Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2035 | 20354 | 2035Trenchers | 2035Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2035 | 20352 | 2035Welders | 2035Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2037 | 20373 | 2037Aerial Lifts | 2037Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2037 | 20374 | 2037Air Compressors | 2037Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2037 | 20376 | 2037Bore/Drill Rigs | 2037Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2037 | 20371 | 2037Cement and Mortar Mixers | 2037Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2037 | 20374 | 2037Concrete/Industrial Saws | 2037Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2037 | 20376 | 2037Cranes | 2037Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2037 | 20376 | 2037Crawler Tractors | 2037Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2037 | 20374 | 2037Crushing/Proc. Equipment | 2037Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2037 | 20371 | 2037Dumpers/Tenders | 2037Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2037 | 20375 | 2037Excavators | 2037Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2037 | 20374 | 2037Forklifts | 2037Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2037 | 20374 | 2037Generator Sets | 2037Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2037 | 20376 | 2037Graders | 2037Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2037 | 20375 | 2037Off-Highway Tractors | 2037Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2037 | 20377 | 2037Off-Highway Trucks | 2037Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2037 | 20375 | 2037Other Construction Equipment | 2037Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2037 | 20374 | 2037Other General Industrial Equipmen | 2037Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2037 | 20375 | 2037Other Material Handling Equipment | 2037Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2037 | 20375 | 2037Pavers | 2037Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2037 | 20375 | 2037Paving Equipment | 2037Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2037 | 20371 | 2037Plate Compactors | 2037Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2037 | 20371 | 2037Pressure Washers | 2037Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2037 | 20374 | 2037Pumps | 2037Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2037 | 20374 | 2037Rollers | 2037Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2037 | 20375 | 2037Rough Terrain Forklifts | 2037Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2037 | 20376 | 2037Rubber Tired Dozers | 2037Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 20376 | 2037Rubber Tired Loaders | 2037Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2037 | 20377 | 2037Scrapers | 2037Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2037 | 20371 | 2037Signal Boards | 2037Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2037 | 20373 | 2037Skid Steer Loaders | 2037Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2037 | 20376 | 2037Surfacing Equipment | 2037Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2037 | 20373 | 2037Sweepers/Scrubbers | 2037Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2037 | 20374 | 2037Tractors/Loaders/Backhoes | 2037Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2037 | 20374 | 2037Trenchers | 2037Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2037 | 20372 | 2037Welders | 2037Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2038 | 20383 | 2038Aerial Lifts | 2038Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2038 | 20384 | 2038Air Compressors | 2038Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2038 | 20386 | 2038Bore/Drill Rigs | 2038Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2038 | 20381 | 2038Cement and Mortar Mixers | 2038Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2038 | 20384 | 2038Concrete/Industrial Saws | 2038Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2038 | 20386 | 2038Cranes | 2038Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2038 | 20386 | 2038Crawler Tractors | 2038Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2038 | 20384 | 2038Crushing/Proc. Equipment | 2038Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2038 | 20381 | 2038Dumpers/Tenders | 2038Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2038 | 20385 | 2038Excavators | 2038Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2038 | 20384 | 2038Forklifts | 2038Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2038 | 20384 | 2038Generator Sets | 2038Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2038 | 20386 | 2038Graders | 2038Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2038 | 20385 | 2038Off-Highway Tractors | 2038Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2038 | 20387 | 2038Off-Highway Trucks | 2038Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2038 | 20385 | 2038Other Construction Equipment | 2038Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2038 | 20384 | 2038Other General Industrial Equipmen | 2038Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2038 | 20385 | 2038Other Material Handling Equipment | 2038Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2038 | 20385 | 2038Pavers | 2038Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2038 | 20385 | 2038Paving Equipment | 2038Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2038 | 20381 | 2038Plate Compactors | 2038Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2038 | 20381 | 2038Pressure Washers | 2038Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2038 | 20384 | 2038Pumps | 2038Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2038 | 20384 | 2038Rollers | 2038Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2038 | 20385 | 2038Rough Terrain Forklifts | 2038Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2038 | 20386 | 2038Rubber Tired Dozers | 2038Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2038 | 20386 | 2038Rubber Tired Loaders | 2038Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2038 | 20387 | 2038Scrapers | 2038Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2038 | 20381 | 2038Signal Boards | 2038Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2038 | 20383 | 2038Skid Steer Loaders | 2038Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2038 | 20386 | 2038Surfacing Equipment | 2038Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2038 | 20383 | 2038Sweepers/Scrubbers | 2038Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2038 | 20384 | 2038Tractors/Loaders/Backhoes | 2038Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2038 | 20384 | 2038Trenchers | 2038Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2038 | 20382 | 2038Welders | 2038Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2041 | 20413 | 2041Aerial Lifts | 2041Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2041 | 20414 | 2041Air Compressors | 2041Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2041 | 20416 | 2041Bore/Drill Rigs | 2041Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2041 | 20411 | 2041Cement and Mortar Mixers | 2041Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2041 | 20414 | 2041Concrete/Industrial Saws | 2041Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2041 | 20416 | 2041Cranes | 2041Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2041 | 20416 | 2041Crawler Tractors | 2041Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2041 | 20414 | 2041Crushing/Proc. Equipment | 2041Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2041 | 20411 | 2041Dumpers/Tenders | 2041Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2041 | 20415 | 2041Excavators | 2041Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2041 | 20414 | 2041Forklifts | 2041Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2041 | 20414 | 2041Generator Sets | 2041Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2041 | 20416 | 2041Graders | 2041Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2041 | 20415 | 2041Off-Highway Tractors | 2041Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2041 | 20417 | 2041Off-Highway Trucks | 2041Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2041 | 20415 | 2041Other Construction Equipment | 2041Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2041 | 20414 | 2041Other General Industrial Equipmen | 2041Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2041 | 20415 | 2041Other Material Handling Equipment | 2041Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2041 | 20415 | 2041Pavers | 2041Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2041 | 20415 | 2041Paving Equipment | 2041Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2041 | 20411 | 2041Plate Compactors | 2041Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2041 | 20411 | 2041Pressure Washers | 2041Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |

## Chiquita Canyon Landfill EIR

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2041 | 20414 | 2041Pumps | 2041Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2041 | 20414 | 2041Rollers | 2041Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2041 | 20415 | 2041Rough Terrain Forklifts | 2041Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2041 | 20416 | 2041Rubber Tired Dozers | 2041Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2041 | 20416 | 2041Rubber Tired Loaders | 2041Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2041 | 20417 | 2041Scrapers | 2041Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2041 | 20411 | 2041Signal Boards | 2041Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2041 | 20413 | 2041Skid Steer Loaders | 2041Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2041 | 20416 | 2041Surfacing Equipment | 2041Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2041 | 20413 | 2041Sweepers/Scrubbers | 2041Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2041 | 20414 | 2041Tractors/Loaders/Backhoes | 2041Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2041 | 20414 | 2041Trenchers | 2041Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2041 | 20412 | 2041Welders | 2041Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |

Source: SCAQMD CEQA Handbook website: http://sfprod.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors
Emission factors only available up to 2025; therefore, it was conservatively assumed that the emission factors for years 2026 through 2035 were the same as 2025.
After 2020, NOx/PM10/PM2.5/CO/VOC emission factors taken as the Tier 4f emission standards per the ARB's Diesel Off-road Equipment Regulation Table 3 (13 CCR 2449).
Emission factors for PM2.5 not available; therefore, it was assumed that 92% of diesel off-road equipment PM10 emissions were PM2.5 (SCAQMD Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology, October 2006; Appendix A – Updated CEIDARS List with PM2.5 Fractions, http://www.aqmd.gov/ceqa/handbook/PM2_5/finalAppA.doc).
Default hp and load factor taken from CalEEMod User Guide Appendix D, Table 3.3 (September 2013).

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 2014Aerial Lifts | 2014Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0046 | 120 | 3 |
| 2014 | 2014Air Compressors | 2014Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0068 | 120 | 4 |
| 2014 | 2014Bore/Drill Rigs | 2014Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0066 | 250 | 6 |
| 2014 | 2014Cement and Mortar Mixers | 2014Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2014 | 2014Concrete/Industrial Saws | 2014Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0088 | 120 | 4 |
| 2014 | 2014Cranes | 2014Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0088 | 250 | 6 |
| 2014 | 2014Crawler Tractors | 2014Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0151 | 250 | 6 |
| 2014 | 2014Crushing/Proc. Equipment | 2014Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0116 | 120 | 4 |
| 2014 | 2014Dumpers/Tenders | 2014Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0009 | 25 | 1 |
| 2014 | 2014Excavators | 2014Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0102 | 175 | 5 |
| 2014 | 2014Forklifts | 2014Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0035 | 120 | 4 |
| 2014 | 2014Generator Sets | 2014Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0091 | 120 | 4 |
| 2014 | 2014Graders | 2014Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0125 | 175 | 6 |
| 2014 | 2014Off-Highway Tractors | 2014Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0177 | 175 | 5 |
| 2014 | 2014Off-Highway Trucks | 2014Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0186 | 500 | 7 |
| 2014 | 2014Other Construction Equipment | 2014Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0078 | 175 | 5 |
| 2014 | 2014Other General Industrial Equipmen | 2014Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0098 | 120 | 4 |
| 2014 | 2014Other Material Handling Equipment | 2014Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0134 | 175 | 5 |
| 2014 | 2014Pavers | 2014Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0153 | 175 | 5 |
| 2014 | 2014Paving Equipment | 2014Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0119 | 175 | 5 |
| 2014 | 2014Plate Compactors | 2014Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2014 | 2014Pressure Washers | 2014Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0006 | 15 | 1 |
| 2014 | 2014Pumps | 2014Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0095 | 120 | 4 |
| 2014 | 2014Rollers | 2014Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0083 | 120 | 4 |
| 2014 | 2014Rough Terrain Forklifts | 2014Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0079 | 120 | 4 |
| 2014 | 2014Rubber Tired Dozers | 2014Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0277 | 500 | 6 |
| 2014 | 2014Rubber Tired Loaders | 2014Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0107 | 250 | 6 |
| 2014 | 2014Scrapers | 2014Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0274 | 500 | 7 |
| 2014 | 2014Signal Boards | 2014Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2014 | 2014Sweepers/Scrubbers | 2014Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0089 | 120 | 3 |
| 2014 | 2014Tractors/Loaders/Backhoes | 2014Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0057 | 120 | 4 |
| 2014 | 2014Trenchers | 2014Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0109 | 120 | 4 |
| 2014 | 2014Welders | 2014Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0080 | 50 | 2 |
| 2015 | 2015Aerial Lifts | 2015Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0042 | 120 | 3 |
| 2015 | 2015Air Compressors | 2015Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0062 | 120 | 4 |
| 2015 | 2015Bore/Drill Rigs | 2015Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0061 | 250 | 6 |
| 2015 | 2015Cement and Mortar Mixers | 2015Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2015 | 2015Concrete/Industrial Saws | 2015Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0080 | 120 | 4 |
| 2015 | 2015Cranes | 2015Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0083 | 250 | 6 |
| 2015 | 2015Crawler Tractors | 2015Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0143 | 250 | 6 |
| 2015 | 2015Crushing/Proc. Equipment | 2015Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0105 | 120 | 4 |
| 2015 | 2015Dumpers/Tenders | 2015Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2015 | 2015Excavators | 2015Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0095 | 175 | 5 |
| 2015 | 2015Forklifts | 2015Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0031 | 120 | 4 |
| 2015 | 2015Generator Sets | 2015Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0082 | 120 | 4 |
| 2015 | 2015Graders | 2015Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0117 | 175 | 6 |
| 2015 | 2015Off-Highway Tractors | 2015Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0169 | 175 | 5 |
| 2015 | 2015Off-Highway Trucks | 2015Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0177 | 500 | 7 |
| 2015 | 2015Other Construction Equipment | 2015Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0072 | 175 | 5 |
| 2015 | 2015Other General Industrial Equipmen | 2015Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0089 | 120 | 4 |
| 2015 | 2015Other Material Handling Equipment | 2015Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0123 | 175 | 5 |
| 2015 | 2015Pavers | 2015Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0145 | 175 | 5 |
| 2015 | 2015Paving Equipment | 2015Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0113 | 175 | 5 |
| 2015 | 2015Plate Compactors | 2015Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2015 | 2015Pressure Washers | 2015Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0006 | 15 | 1 |
| 2015 | 2015Pumps | 2015Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0086 | 120 | 4 |
| 2015 | 2015Rollers | 2015Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0077 | 120 | 4 |
| 2015 | 2015Rough Terrain Forklifts | 2015Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0072 | 120 | 4 |
| 2015 | 2015Rubber Tired Dozers | 2015Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0265 | 500 | 6 |
| 2015 | 2015Rubber Tired Loaders | 2015Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0101 | 250 | 6 |
| 2015 | 2015Scrapers | 2015Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0260 | 500 | 7 |
| 2015 | 2015Signal Boards | 2015Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 2015Skid Steer Loaders | 2015Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0030 | 120 | 3 |
| 2015 | 2015Surfacing Equipment | 2015Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0121 | 500 | 6 |
| 2015 | 2015Sweepers/Scrubbers | 2015Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0079 | 120 | 3 |
| 2015 | 2015Tractors/Loaders/Backhoes | 2015Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0052 | 120 | 4 |
| 2015 | 2015Trenchers | 2015Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0103 | 120 | 4 |
| 2015 | 2015Welders | 2015Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0072 | 50 | 2 |
| 2016 | 2016Aerial Lifts | 2016Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0037 | 120 | 3 |
| 2016 | 2016Air Compressors | 2016Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0056 | 120 | 4 |
| 2016 | 2016Bore/Drill Rigs | 2016Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0057 | 250 | 6 |
| 2016 | 2016Cement and Mortar Mixers | 2016Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2016 | 2016Concrete/Industrial Saws | 2016Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0073 | 120 | 4 |
| 2016 | 2016Cranes | 2016Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0079 | 250 | 6 |
| 2016 | 2016Crawler Tractors | 2016Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0135 | 250 | 6 |
| 2016 | 2016Crushing/Proc. Equipment | 2016Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0095 | 120 | 4 |
| 2016 | 2016Dumpers/Tenders | 2016Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2016 | 2016Excavators | 2016Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0088 | 175 | 5 |
| 2016 | 2016Forklifts | 2016Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0028 | 120 | 4 |
| 2016 | 2016Generator Sets | 2016Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0073 | 120 | 4 |
| 2016 | 2016Graders | 2016Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0110 | 175 | 6 |
| 2016 | 2016Off-Highway Tractors | 2016Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0161 | 175 | 5 |
| 2016 | 2016Off-Highway Trucks | 2016Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0167 | 500 | 7 |
| 2016 | 2016Other Construction Equipment | 2016Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0066 | 175 | 5 |
| 2016 | 2016Other General Industrial Equipmen | 2016Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0081 | 120 | 4 |
| 2016 | 2016Other Material Handling Equipment | 2016Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0113 | 175 | 5 |
| 2016 | 2016Pavers | 2016Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0138 | 175 | 5 |
| 2016 | 2016Paving Equipment | 2016Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0107 | 175 | 5 |
| 2016 | 2016Plate Compactors | 2016Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2016 | 2016Pressure Washers | 2016Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0006 | 15 | 1 |
| 2016 | 2016Pumps | 2016Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0077 | 120 | 4 |
| 2016 | 2016Rollers | 2016Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0072 | 120 | 4 |
| 2016 | 2016Rough Terrain Forklifts | 2016Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0066 | 120 | 4 |
| 2016 | 2016Rubber Tired Dozers | 2016Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0252 | 500 | 6 |
| 2016 | 2016Rubber Tired Loaders | 2016Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0095 | 250 | 6 |
| 2016 | 2016Scrapers | 2016Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0247 | 500 | 7 |
| 2016 | 2016Signal Boards | 2016Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2016 | 2016Skid Steer Loaders | 2016Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0027 | 120 | 3 |
| 2016 | 2016Surfacing Equipment | 2016Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0114 | 500 | 6 |
| 2016 | 2016Sweepers/Scrubbers | 2016Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0070 | 120 | 3 |
| 2016 | 2016Tractors/Loaders/Backhoes | 2016Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0047 | 120 | 4 |
| 2016 | 2016Trenchers | 2016Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0097 | 120 | 4 |
| 2016 | 2016Welders | 2016Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0065 | 50 | 2 |
| 2017 | 2017Aerial Lifts | 2017Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0033 | 120 | 3 |
| 2017 | 2017Air Compressors | 2017Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0051 | 120 | 4 |
| 2017 | 2017Bore/Drill Rigs | 2017Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0052 | 250 | 6 |
| 2017 | 2017Cement and Mortar Mixers | 2017Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2017 | 2017Concrete/Industrial Saws | 2017Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0066 | 120 | 4 |
| 2017 | 2017Cranes | 2017Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0075 | 250 | 6 |
| 2017 | 2017Crawler Tractors | 2017Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0127 | 250 | 6 |
| 2017 | 2017Crushing/Proc. Equipment | 2017Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0086 | 120 | 4 |
| 2017 | 2017Dumpers/Tenders | 2017Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2017 | 2017Excavators | 2017Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0081 | 175 | 5 |
| 2017 | 2017Forklifts | 2017Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0026 | 120 | 4 |
| 2017 | 2017Generator Sets | 2017Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0065 | 120 | 4 |
| 2017 | 2017Graders | 2017Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0102 | 175 | 6 |
| 2017 | 2017Off-Highway Tractors | 2017Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0153 | 175 | 5 |
| 2017 | 2017Off-Highway Trucks | 2017Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0158 | 500 | 7 |
| 2017 | 2017Other Construction Equipment | 2017Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0060 | 175 | 5 |
| 2017 | 2017Other General Industrial Equipmen | 2017Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0073 | 120 | 4 |
| 2017 | 2017Other Material Handling Equipment | 2017Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0103 | 175 | 5 |
| 2017 | 2017Pavers | 2017Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0130 | 175 | 5 |
| 2017 | 2017Paving Equipment | 2017Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0101 | 175 | 5 |
| 2017 | 2017Plate Compactors | 2017Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2017 | 2017Pressure Washers | 2017Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2017 | 2017Pumps | 2017Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0069 | 120 | 4 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 2017Rollers | 2017Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0066 | 120 | 4 |
| 2017 | 2017Rough Terrain Forklifts | 2017Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0060 | 120 | 4 |
| 2017 | 2017Rubber Tired Dozers | 2017Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0240 | 500 | 6 |
| 2017 | 2017Rubber Tired Loaders | 2017Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0090 | 250 | 6 |
| 2017 | 2017Scrapers | 2017Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0234 | 500 | 7 |
| 2017 | 2017Signal Boards | 2017Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2017 | 2017Skid Steer Loaders | 2017Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0024 | 120 | 3 |
| 2017 | 2017Surfacing Equipment | 2017Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0107 | 500 | 6 |
| 2017 | 2017Sweepers/Scrubbers | 2017Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0063 | 120 | 3 |
| 2017 | 2017Tractors/Loaders/Backhoes | 2017Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0043 | 120 | 4 |
| 2017 | 2017Trenchers | 2017Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0092 | 120 | 4 |
| 2017 | 2017Welders | 2017Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0058 | 50 | 2 |
| 2018 | 2018Aerial Lifts | 2018Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0029 | 120 | 3 |
| 2018 | 2018Air Compressors | 2018Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0045 | 120 | 4 |
| 2018 | 2018Bore/Drill Rigs | 2018Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0049 | 250 | 6 |
| 2018 | 2018Cement and Mortar Mixers | 2018Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2018 | 2018Concrete/Industrial Saws | 2018Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0059 | 120 | 4 |
| 2018 | 2018Cranes | 2018Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0071 | 250 | 6 |
| 2018 | 2018Crawler Tractors | 2018Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0120 | 250 | 6 |
| 2018 | 2018Crushing/Proc. Equipment | 2018Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0077 | 120 | 4 |
| 2018 | 2018Dumpers/Tenders | 2018Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2018 | 2018Excavators | 2018Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0074 | 175 | 5 |
| 2018 | 2018Forklifts | 2018Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0024 | 120 | 4 |
| 2018 | 2018Generator Sets | 2018Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0058 | 120 | 4 |
| 2018 | 2018Graders | 2018Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0096 | 175 | 6 |
| 2018 | 2018Off-Highway Tractors | 2018Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0146 | 175 | 5 |
| 2018 | 2018Off-Highway Trucks | 2018Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0149 | 500 | 7 |
| 2018 | 2018Other Construction Equipment | 2018Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0055 | 175 | 5 |
| 2018 | 2018Other General Industrial Equipmen | 2018Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0066 | 120 | 4 |
| 2018 | 2018Other Material Handling Equipment | 2018Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0095 | 175 | 5 |
| 2018 | 2018Pavers | 2018Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0123 | 175 | 5 |
| 2018 | 2018Paving Equipment | 2018Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0096 | 175 | 5 |
| 2018 | 2018Plate Compactors | 2018Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2018 | 2018Pressure Washers | 2018Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2018 | 2018Pumps | 2018Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0061 | 120 | 4 |
| 2018 | 2018Rollers | 2018Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0061 | 120 | 4 |
| 2018 | 2018Rough Terrain Forklifts | 2018Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0054 | 120 | 4 |
| 2018 | 2018Rubber Tired Dozers | 2018Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0228 | 500 | 6 |
| 2018 | 2018Rubber Tired Loaders | 2018Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0085 | 250 | 6 |
| 2018 | 2018Scrapers | 2018Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0222 | 500 | 7 |
| 2018 | 2018Signal Boards | 2018Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2018 | 2018Skid Steer Loaders | 2018Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0022 | 120 | 3 |
| 2018 | 2018Surfacing Equipment | 2018Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0101 | 500 | 6 |
| 2018 | 2018Sweepers/Scrubbers | 2018Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0058 | 120 | 3 |
| 2018 | 2018Tractors/Loaders/Backhoes | 2018Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0039 | 120 | 4 |
| 2018 | 2018Trenchers | 2018Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0087 | 120 | 4 |
| 2018 | 2018Welders | 2018Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0051 | 50 | 2 |
| 2019 | 2019Aerial Lifts | 2019Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0026 | 120 | 3 |
| 2019 | 2019Air Compressors | 2019Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0041 | 120 | 4 |
| 2019 | 2019Bore/Drill Rigs | 2019Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0045 | 250 | 6 |
| 2019 | 2019Cement and Mortar Mixers | 2019Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2019 | 2019Concrete/Industrial Saws | 2019Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0052 | 120 | 4 |
| 2019 | 2019Cranes | 2019Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0067 | 250 | 6 |
| 2019 | 2019Crawler Tractors | 2019Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0114 | 250 | 6 |
| 2019 | 2019Crushing/Proc. Equipment | 2019Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0069 | 120 | 4 |
| 2019 | 2019Dumpers/Tenders | 2019Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2019 | 2019Excavators | 2019Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0068 | 175 | 5 |
| 2019 | 2019Forklifts | 2019Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0022 | 120 | 4 |
| 2019 | 2019Generator Sets | 2019Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0051 | 120 | 4 |
| 2019 | 2019Graders | 2019Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0089 | 175 | 6 |
| 2019 | 2019Off-Highway Tractors | 2019Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0138 | 175 | 5 |
| 2019 | 2019Off-Highway Trucks | 2019Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0142 | 500 | 7 |
| 2019 | 2019Other Construction Equipment | 2019Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0051 | 175 | 5 |
| 2019 | 2019Other General Industrial Equipmen | 2019Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0059 | 120 | 4 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 2019Other Material Handling Equipment | 2019Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0088 | 175 | 5 |
| 2019 | 2019Pavers | 2019Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0116 | 175 | 5 |
| 2019 | 2019Paving Equipment | 2019Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0090 | 175 | 5 |
| 2019 | 2019Plate Compactors | 2019Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2019 | 2019Pressure Washers | 2019Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2019 | 2019Pumps | 2019Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0054 | 120 | 4 |
| 2019 | 2019Rollers | 2019Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0057 | 120 | 4 |
| 2019 | 2019Rough Terrain Forklifts | 2019Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0049 | 120 | 4 |
| 2019 | 2019Rubber Tired Dozers | 2019Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0217 | 500 | 6 |
| 2019 | 2019Rubber Tired Loaders | 2019Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0081 | 250 | 6 |
| 2019 | 2019Scrapers | 2019Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0210 | 500 | 7 |
| 2019 | 2019Signal Boards | 2019Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2019 | 2019Skid Steer Loaders | 2019Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0021 | 120 | 3 |
| 2019 | 2019Surfacing Equipment | 2019Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0096 | 500 | 6 |
| 2019 | 2019Sweepers/Scrubbers | 2019Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0054 | 120 | 3 |
| 2019 | 2019Tractors/Loaders/Backhoes | 2019Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0036 | 120 | 4 |
| 2019 | 2019Trenchers | 2019Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0081 | 120 | 4 |
| 2019 | 2019Welders | 2019Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0044 | 50 | 2 |
| 2020 | 2020Aerial Lifts | 2020Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0023 | 120 | 3 |
| 2020 | 2020Air Compressors | 2020Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0037 | 120 | 4 |
| 2020 | 2020Bore/Drill Rigs | 2020Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0043 | 250 | 6 |
| 2020 | 2020Cement and Mortar Mixers | 2020Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2020 | 2020Concrete/Industrial Saws | 2020Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0047 | 120 | 4 |
| 2020 | 2020Cranes | 2020Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0064 | 250 | 6 |
| 2020 | 2020Crawler Tractors | 2020Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0107 | 250 | 6 |
| 2020 | 2020Crushing/Proc. Equipment | 2020Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0062 | 120 | 4 |
| 2020 | 2020Dumpers/Tenders | 2020Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2020 | 2020Excavators | 2020Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0063 | 175 | 5 |
| 2020 | 2020Forklifts | 2020Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0020 | 120 | 4 |
| 2020 | 2020Generator Sets | 2020Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0046 | 120 | 4 |
| 2020 | 2020Graders | 2020Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0083 | 175 | 6 |
| 2020 | 2020Off-Highway Tractors | 2020Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0131 | 175 | 5 |
| 2020 | 2020Off-Highway Trucks | 2020Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0134 | 500 | 7 |
| 2020 | 2020Other Construction Equipment | 2020Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0047 | 175 | 5 |
| 2020 | 2020Other General Industrial Equipmen | 2020Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0054 | 120 | 4 |
| 2020 | 2020Other Material Handling Equipment | 2020Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0082 | 175 | 5 |
| 2020 | 2020Pavers | 2020Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0110 | 175 | 5 |
| 2020 | 2020Paving Equipment | 2020Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0085 | 175 | 5 |
| 2020 | 2020Plate Compactors | 2020Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2020 | 2020Pressure Washers | 2020Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2020 | 2020Pumps | 2020Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0048 | 120 | 4 |
| 2020 | 2020Rollers | 2020Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0052 | 120 | 4 |
| 2020 | 2020Rough Terrain Forklifts | 2020Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0045 | 120 | 4 |
| 2020 | 2020Rubber Tired Dozers | 2020Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0207 | 500 | 6 |
| 2020 | 2020Rubber Tired Loaders | 2020Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0077 | 250 | 6 |
| 2020 | 2020Scrapers | 2020Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0200 | 500 | 7 |
| 2020 | 2020Signal Boards | 2020Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2020 | 2020Skid Steer Loaders | 2020Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0020 | 120 | 3 |
| 2020 | 2020Surfacing Equipment | 2020Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0091 | 500 | 6 |
| 2020 | 2020Sweepers/Scrubbers | 2020Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0050 | 120 | 3 |
| 2020 | 2020Tractors/Loaders/Backhoes | 2020Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0033 | 120 | 4 |
| 2020 | 2020Trenchers | 2020Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0077 | 120 | 4 |
| 2020 | 2020Welders | 2020Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0039 | 50 | 2 |
| 2021 | 2021Aerial Lifts | 2021Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0021 | 120 | 3 |
| 2021 | 2021Air Compressors | 2021Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0033 | 120 | 4 |
| 2021 | 2021Bore/Drill Rigs | 2021Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0041 | 250 | 6 |
| 2021 | 2021Cement and Mortar Mixers | 2021Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2021 | 2021Concrete/Industrial Saws | 2021Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0044 | 120 | 4 |
| 2021 | 2021Cranes | 2021Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0060 | 250 | 6 |
| 2021 | 2021Crawler Tractors | 2021Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0101 | 250 | 6 |
| 2021 | 2021Crushing/Proc. Equipment | 2021Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0058 | 120 | 4 |
| 2021 | 2021Dumpers/Tenders | 2021Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2021 | 2021Excavators | 2021Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0059 | 175 | 5 |
| 2021 | 2021Forklifts | 2021Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0019 | 120 | 4 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 2021Generator Sets | 2021Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0041 | 120 | 4 |
| 2021 | 2021Graders | 2021Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0077 | 175 | 6 |
| 2021 | 2021Off-Highway Tractors | 2021Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0124 | 175 | 5 |
| 2021 | 2021Off-Highway Trucks | 2021Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0128 | 500 | 7 |
| 2021 | 2021Other Construction Equipment | 2021Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0044 | 175 | 5 |
| 2021 | 2021Other General Industrial Equipmen | 2021Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0050 | 120 | 4 |
| 2021 | 2021Other Material Handling Equipment | 2021Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0075 | 175 | 5 |
| 2021 | 2021Pavers | 2021Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0104 | 175 | 5 |
| 2021 | 2021Paving Equipment | 2021Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0080 | 175 | 5 |
| 2021 | 2021Plate Compactors | 2021Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2021 | 2021Pressure Washers | 2021Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2021 | 2021Pumps | 2021Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0044 | 120 | 4 |
| 2021 | 2021Rollers | 2021Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0048 | 120 | 4 |
| 2021 | 2021Rough Terrain Forklifts | 2021Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0042 | 120 | 4 |
| 2021 | 2021Rubber Tired Dozers | 2021Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0197 | 500 | 6 |
| 2021 | 2021Rubber Tired Loaders | 2021Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0073 | 250 | 6 |
| 2021 | 2021Scrapers | 2021Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0190 | 500 | 7 |
| 2021 | 2021Signal Boards | 2021Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2021 | 2021Skid Steer Loaders | 2021Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0019 | 120 | 3 |
| 2021 | 2021Surfacing Equipment | 2021Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0087 | 500 | 6 |
| 2021 | 2021Sweepers/Scrubbers | 2021Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0046 | 120 | 3 |
| 2021 | 2021Tractors/Loaders/Backhoes | 2021Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0031 | 120 | 4 |
| 2021 | 2021Trenchers | 2021Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0072 | 120 | 4 |
| 2021 | 2021Welders | 2021Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0035 | 50 | 2 |
| 2022 | 2022Aerial Lifts | 2022Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0020 | 120 | 3 |
| 2022 | 2022Air Compressors | 2022Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0031 | 120 | 4 |
| 2022 | 2022Bore/Drill Rigs | 2022Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0040 | 250 | 6 |
| 2022 | 2022Cement and Mortar Mixers | 2022Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2022 | 2022Concrete/Industrial Saws | 2022Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0040 | 120 | 4 |
| 2022 | 2022Cranes | 2022Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0057 | 250 | 6 |
| 2022 | 2022Crawler Tractors | 2022Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0096 | 250 | 6 |
| 2022 | 2022Crushing/Proc. Equipment | 2022Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0054 | 120 | 4 |
| 2022 | 2022Dumpers/Tenders | 2022Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2022 | 2022Excavators | 2022Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0055 | 175 | 5 |
| 2022 | 2022Forklifts | 2022Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0018 | 120 | 4 |
| 2022 | 2022Generator Sets | 2022Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0038 | 120 | 4 |
| 2022 | 2022Graders | 2022Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0072 | 175 | 6 |
| 2022 | 2022Off-Highway Tractors | 2022Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0118 | 175 | 5 |
| 2022 | 2022Off-Highway Trucks | 2022Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0122 | 500 | 7 |
| 2022 | 2022Other Construction Equipment | 2022Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0041 | 175 | 5 |
| 2022 | 2022Other General Industrial Equipmen | 2022Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0047 | 120 | 4 |
| 2022 | 2022Other Material Handling Equipment | 2022Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0071 | 175 | 5 |
| 2022 | 2022Pavers | 2022Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0098 | 175 | 5 |
| 2022 | 2022Paving Equipment | 2022Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0075 | 175 | 5 |
| 2022 | 2022Plate Compactors | 2022Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2022 | 2022Pressure Washers | 2022Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2022 | 2022Pumps | 2022Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0040 | 120 | 4 |
| 2022 | 2022Rollers | 2022Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0044 | 120 | 4 |
| 2022 | 2022Rough Terrain Forklifts | 2022Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0039 | 120 | 4 |
| 2022 | 2022Rubber Tired Dozers | 2022Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0188 | 500 | 6 |
| 2022 | 2022Rubber Tired Loaders | 2022Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0069 | 250 | 6 |
| 2022 | 2022Scrapers | 2022Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0181 | 500 | 7 |
| 2022 | 2022Signal Boards | 2022Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2022 | 2022Skid Steer Loaders | 2022Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0018 | 120 | 3 |
| 2022 | 2022Surfacing Equipment | 2022Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0083 | 500 | 6 |
| 2022 | 2022Sweepers/Scrubbers | 2022Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0043 | 120 | 3 |
| 2022 | 2022Tractors/Loaders/Backhoes | 2022Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0029 | 120 | 4 |
| 2022 | 2022Trenchers | 2022Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0068 | 120 | 4 |
| 2022 | 2022Welders | 2022Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0032 | 50 | 2 |
| 2023 | 2023Aerial Lifts | 2023Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0018 | 120 | 3 |
| 2023 | 2023Air Compressors | 2023Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0029 | 120 | 4 |
| 2023 | 2023Bore/Drill Rigs | 2023Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2023 | 2023Cement and Mortar Mixers | 2023Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2023 | 2023Concrete/Industrial Saws | 2023Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0038 | 120 | 4 |

## Chiquita Canyon Landfill EIR

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Cranes | 2023Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0054 | 250 | 6 |
| 2023 | 2023Crawler Tractors | 2023Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0091 | 250 | 6 |
| 2023 | 2023Crushing/Proc. Equipment | 2023Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0051 | 120 | 4 |
| 2023 | 2023Dumpers/Tenders | 2023Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2023 | 2023Excavators | 2023Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0052 | 175 | 5 |
| 2023 | 2023Forklifts | 2023Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0017 | 120 | 4 |
| 2023 | 2023Generator Sets | 2023Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0035 | 120 | 4 |
| 2023 | 2023Graders | 2023Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0067 | 175 | 6 |
| 2023 | 2023Off-Highway Tractors | 2023Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0112 | 175 | 5 |
| 2023 | 2023Off-Highway Trucks | 2023Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0116 | 500 | 7 |
| 2023 | 2023Other Construction Equipment | 2023Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0039 | 175 | 5 |
| 2023 | 2023Other General Industrial Equipmen | 2023Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0044 | 120 | 4 |
| 2023 | 2023Other Material Handling Equipment | 2023Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0067 | 175 | 5 |
| 2023 | 2023Pavers | 2023Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0092 | 175 | 5 |
| 2023 | 2023Paving Equipment | 2023Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0071 | 175 | 5 |
| 2023 | 2023Plate Compactors | 2023Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2023 | 2023Pressure Washers | 2023Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2023 | 2023Pumps | 2023Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0038 | 120 | 4 |
| 2023 | 2023Rollers | 2023Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0041 | 120 | 4 |
| 2023 | 2023Rough Terrain Forklifts | 2023Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0037 | 120 | 4 |
| 2023 | 2023Rubber Tired Dozers | 2023Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0179 | 500 | 6 |
| 2023 | 2023Rubber Tired Loaders | 2023Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0065 | 250 | 6 |
| 2023 | 2023Scrapers | 2023Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0173 | 500 | 7 |
| 2023 | 2023Signal Boards | 2023Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2023 | 2023Skid Steer Loaders | 2023Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0017 | 120 | 3 |
| 2023 | 2023Surfacing Equipment | 2023Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0079 | 500 | 6 |
| 2023 | 2023Sweepers/Scrubbers | 2023Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0040 | 120 | 3 |
| 2023 | 2023Tractors/Loaders/Backhoes | 2023Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0027 | 120 | 4 |
| 2023 | 2023Trenchers | 2023Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0064 | 120 | 4 |
| 2023 | 2023Welders | 2023Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0029 | 50 | 2 |
| 2024 | 2024Aerial Lifts | 2024Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0017 | 120 | 3 |
| 2024 | 2024Air Compressors | 2024Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0028 | 120 | 4 |
| 2024 | 2024Bore/Drill Rigs | 2024Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2024 | 2024Cement and Mortar Mixers | 2024Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2024 | 2024Concrete/Industrial Saws | 2024Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0035 | 120 | 4 |
| 2024 | 2024Cranes | 2024Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0051 | 250 | 6 |
| 2024 | 2024Crawler Tractors | 2024Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0087 | 250 | 6 |
| 2024 | 2024Crushing/Proc. Equipment | 2024Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0048 | 120 | 4 |
| 2024 | 2024Dumpers/Tenders | 2024Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2024 | 2024Excavators | 2024Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0049 | 175 | 5 |
| 2024 | 2024Forklifts | 2024Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0016 | 120 | 4 |
| 2024 | 2024Generator Sets | 2024Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2024 | 2024Graders | 2024Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0063 | 175 | 6 |
| 2024 | 2024Off-Highway Tractors | 2024Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0106 | 175 | 5 |
| 2024 | 2024Off-Highway Trucks | 2024Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0111 | 500 | 7 |
| 2024 | 2024Other Construction Equipment | 2024Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0037 | 175 | 5 |
| 2024 | 2024Other General Industrial Equipmen | 2024Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0041 | 120 | 4 |
| 2024 | 2024Other Material Handling Equipment | 2024Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0063 | 175 | 5 |
| 2024 | 2024Pavers | 2024Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0086 | 175 | 5 |
| 2024 | 2024Paving Equipment | 2024Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0066 | 175 | 5 |
| 2024 | 2024Plate Compactors | 2024Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2024 | 2024Pressure Washers | 2024Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2024 | 2024Pumps | 2024Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0035 | 120 | 4 |
| 2024 | 2024Rollers | 2024Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0038 | 120 | 4 |
| 2024 | 2024Rough Terrain Forklifts | 2024Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0035 | 120 | 4 |
| 2024 | 2024Rubber Tired Dozers | 2024Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0171 | 500 | 6 |
| 2024 | 2024Rubber Tired Loaders | 2024Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0062 | 250 | 6 |
| 2024 | 2024Scrapers | 2024Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0165 | 500 | 7 |
| 2024 | 2024Signal Boards | 2024Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2024 | 2024Skid Steer Loaders | 2024Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2024 | 2024Surfacing Equipment | 2024Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0075 | 500 | 6 |
| 2024 | 2024Sweepers/Scrubbers | 2024Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0038 | 120 | 3 |
| 2024 | 2024Tractors/Loaders/Backhoes | 2024Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0026 | 120 | 4 |
| 2024 | 2024Trenchers | 2024Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0060 | 120 | 4 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2024Welders | 2024Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0027 | 50 | 2 |
| 2025 | 2025Aerial Lifts | 2025Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2025 | 2025Air Compressors | 2025Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2025 | 2025Bore/Drill Rigs | 2025Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2025 | 2025Cement and Mortar Mixers | 2025Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2025 | 2025Concrete/Industrial Saws | 2025Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2025 | 2025Cranes | 2025Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2025 | 2025Crawler Tractors | 2025Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2025 | 2025Crushing/Proc. Equipment | 2025Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2025 | 2025Dumpers/Tenders | 2025Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2025 | 2025Excavators | 2025Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2025 | 2025Forklifts | 2025Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2025 | 2025Generator Sets | 2025Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2025 | 2025Graders | 2025Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2025 | 2025Off-Highway Tractors | 2025Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2025 | 2025Off-Highway Trucks | 2025Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2025 | 2025Other Construction Equipment | 2025Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2025 | 2025Other General Industrial Equipmen | 2025Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2025 | 2025Other Material Handling Equipment | 2025Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2025 | 2025Pavers | 2025Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2025 | 2025Paving Equipment | 2025Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2025 | 2025Plate Compactors | 2025Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2025 | 2025Pressure Washers | 2025Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2025 | 2025Pumps | 2025Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2025 | 2025Rollers | 2025Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2025 | 2025Rough Terrain Forklifts | 2025Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2025 | 2025Rubber Tired Dozers | 2025Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2025 | 2025Rubber Tired Loaders | 2025Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2025 | 2025Scrapers | 2025Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2025 | 2025Signal Boards | 2025Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2025 | 2025Skid Steer Loaders | 2025Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2025 | 2025Surfacing Equipment | 2025Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2025 | 2025Sweepers/Scrubbers | 2025Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2025 | 2025Tractors/Loaders/Backhoes | 2025Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2025 | 2025Trenchers | 2025Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2025 | 2025Welders | 2025Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2026 | 2026Aerial Lifts | 2026Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2026 | 2026Air Compressors | 2026Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2026 | 2026Bore/Drill Rigs | 2026Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2026 | 2026Cement and Mortar Mixers | 2026Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2026 | 2026Concrete/Industrial Saws | 2026Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2026 | 2026Cranes | 2026Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2026 | 2026Crawler Tractors | 2026Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2026 | 2026Crushing/Proc. Equipment | 2026Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2026 | 2026Dumpers/Tenders | 2026Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2026 | 2026Excavators | 2026Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2026 | 2026Forklifts | 2026Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2026 | 2026Generator Sets | 2026Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2026 | 2026Graders | 2026Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2026 | 2026Off-Highway Tractors | 2026Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2026 | 2026Off-Highway Trucks | 2026Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2026 | 2026Other Construction Equipment | 2026Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2026 | 2026Other General Industrial Equipmen | 2026Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2026 | 2026Other Material Handling Equipment | 2026Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2026 | 2026Pavers | 2026Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2026 | 2026Paving Equipment | 2026Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2026 | 2026Plate Compactors | 2026Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2026 | 2026Pressure Washers | 2026Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2026 | 2026Pumps | 2026Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2026 | 2026Rollers | 2026Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2026 | 2026Rough Terrain Forklifts | 2026Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2026 | 2026Rubber Tired Dozers | 2026Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2026 | 2026Rubber Tired Loaders | 2026Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2026 | 2026Scrapers | 2026Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |

## Chiquita Canyon Landfill EIR

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Signal Boards | 2026Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2026 | 2026Skid Steer Loaders | 2026Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2026 | 2026Surfacing Equipment | 2026Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2026 | 2026Sweepers/Scrubbers | 2026Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2026 | 2026Tractors/Loaders/Backhoes | 2026Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2026 | 2026Trenchers | 2026Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2026 | 2026Welders | 2026Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2027 | 2027Aerial Lifts | 2027Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2027 | 2027Air Compressors | 2027Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2027 | 2027Bore/Drill Rigs | 2027Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2027 | 2027Cement and Mortar Mixers | 2027Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2027 | 2027Concrete/Industrial Saws | 2027Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2027 | 2027Cranes | 2027Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2027 | 2027Crawler Tractors | 2027Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2027 | 2027Crushing/Proc. Equipment | 2027Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2027 | 2027Dumpers/Tenders | 2027Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2027 | 2027Excavators | 2027Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2027 | 2027Forklifts | 2027Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2027 | 2027Generator Sets | 2027Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2027 | 2027Graders | 2027Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2027 | 2027Off-Highway Tractors | 2027Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2027 | 2027Off-Highway Trucks | 2027Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2027 | 2027Other Construction Equipment | 2027Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2027 | 2027Other General Industrial Equipmen | 2027Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2027 | 2027Other Material Handling Equipment | 2027Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2027 | 2027Pavers | 2027Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2027 | 2027Paving Equipment | 2027Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2027 | 2027Plate Compactors | 2027Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2027 | 2027Pressure Washers | 2027Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2027 | 2027Pumps | 2027Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2027 | 2027Rollers | 2027Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2027 | 2027Rough Terrain Forklifts | 2027Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2027 | 2027Rubber Tired Dozers | 2027Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2027 | 2027Rubber Tired Loaders | 2027Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2027 | 2027Scrapers | 2027Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2027 | 2027Signal Boards | 2027Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2027 | 2027Skid Steer Loaders | 2027Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2027 | 2027Surfacing Equipment | 2027Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2027 | 2027Sweepers/Scrubbers | 2027Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2027 | 2027Tractors/Loaders/Backhoes | 2027Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2027 | 2027Trenchers | 2027Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2027 | 2027Welders | 2027Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2028 | 2028Aerial Lifts | 2028Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2028 | 2028Air Compressors | 2028Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2028 | 2028Bore/Drill Rigs | 2028Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2028 | 2028Cement and Mortar Mixers | 2028Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2028 | 2028Concrete/Industrial Saws | 2028Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2028 | 2028Cranes | 2028Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2028 | 2028Crawler Tractors | 2028Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2028 | 2028Crushing/Proc. Equipment | 2028Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2028 | 2028Dumpers/Tenders | 2028Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2028 | 2028Excavators | 2028Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2028 | 2028Forklifts | 2028Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2028 | 2028Generator Sets | 2028Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2028 | 2028Graders | 2028Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2028 | 2028Off-Highway Tractors | 2028Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2028 | 2028Off-Highway Trucks | 2028Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2028 | 2028Other Construction Equipment | 2028Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2028 | 2028Other General Industrial Equipmen | 2028Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2028 | 2028Other Material Handling Equipment | 2028Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2028 | 2028Pavers | 2028Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2028 | 2028Paving Equipment | 2028Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2028 | 2028Plate Compactors | 2028Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2028 | 2028Pressure Washers | 2028Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |

## Chiquita Canyon Landfill EIR

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | 2028Pumps | 2028Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2028 | 2028Rollers | 2028Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2028 | 2028Rough Terrain Forklifts | 2028Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2028 | 2028Rubber Tired Dozers | 2028Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2028 | 2028Rubber Tired Loaders | 2028Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2028 | 2028Scrapers | 2028Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2028 | 2028Signal Boards | 2028Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2028 | 2028Skid Steer Loaders | 2028Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2028 | 2028Surfacing Equipment | 2028Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2028 | 2028Sweepers/Scrubbers | 2028Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2028 | 2028Tractors/Loaders/Backhoes | 2028Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2028 | 2028Trenchers | 2028Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2028 | 2028Welders | 2028Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2029 | 2029Aerial Lifts | 2029Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2029 | 2029Air Compressors | 2029Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2029 | 2029Bore/Drill Rigs | 2029Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2029 | 2029Cement and Mortar Mixers | 2029Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2029 | 2029Concrete/Industrial Saws | 2029Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2029 | 2029Cranes | 2029Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2029 | 2029Crawler Tractors | 2029Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2029 | 2029Crushing/Proc. Equipment | 2029Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2029 | 2029Dumpers/Tenders | 2029Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2029 | 2029Excavators | 2029Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2029 | 2029Forklifts | 2029Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2029 | 2029Generator Sets | 2029Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2029 | 2029Graders | 2029Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2029 | 2029Off-Highway Tractors | 2029Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2029 | 2029Off-Highway Trucks | 2029Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2029 | 2029Other Construction Equipment | 2029Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2029 | 2029Other General Industrial Equipmen | 2029Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2029 | 2029Other Material Handling Equipment | 2029Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2029 | 2029Pavers | 2029Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2029 | 2029Paving Equipment | 2029Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2029 | 2029Plate Compactors | 2029Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2029 | 2029Pressure Washers | 2029Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2029 | 2029Pumps | 2029Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2029 | 2029Rollers | 2029Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2029 | 2029Rough Terrain Forklifts | 2029Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2029 | 2029Rubber Tired Dozers | 2029Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2029 | 2029Rubber Tired Loaders | 2029Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2029 | 2029Scrapers | 2029Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2029 | 2029Signal Boards | 2029Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2029 | 2029Skid Steer Loaders | 2029Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2029 | 2029Surfacing Equipment | 2029Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2029 | 2029Sweepers/Scrubbers | 2029Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2029 | 2029Tractors/Loaders/Backhoes | 2029Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2029 | 2029Trenchers | 2029Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2029 | 2029Welders | 2029Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2030 | 2030Aerial Lifts | 2030Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2030 | 2030Air Compressors | 2030Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2030 | 2030Bore/Drill Rigs | 2030Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2030 | 2030Cement and Mortar Mixers | 2030Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2030 | 2030Concrete/Industrial Saws | 2030Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2030 | 2030Cranes | 2030Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2030 | 2030Crawler Tractors | 2030Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2030 | 2030Crushing/Proc. Equipment | 2030Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2030 | 2030Dumpers/Tenders | 2030Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2030 | 2030Excavators | 2030Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2030 | 2030Forklifts | 2030Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2030 | 2030Generator Sets | 2030Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2030 | 2030Graders | 2030Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2030 | 2030Off-Highway Tractors | 2030Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2030 | 2030Off-Highway Trucks | 2030Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2030 | 2030Other Construction Equipment | 2030Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 2030Other General Industrial Equipmen | 2030Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2030 | 2030Other Material Handling Equipment | 2030Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2030 | 2030Pavers | 2030Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2030 | 2030Paving Equipment | 2030Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2030 | 2030Plate Compactors | 2030Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2030 | 2030Pressure Washers | 2030Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2030 | 2030Pumps | 2030Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2030 | 2030Rollers | 2030Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2030 | 2030Rough Terrain Forklifts | 2030Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2030 | 2030Rubber Tired Dozers | 2030Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2030 | 2030Rubber Tired Loaders | 2030Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2030 | 2030Scrapers | 2030Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2030 | 2030Signal Boards | 2030Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2030 | 2030Skid Steer Loaders | 2030Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2030 | 2030Surfacing Equipment | 2030Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2030 | 2030Sweepers/Scrubbers | 2030Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2030 | 2030Tractors/Loaders/Backhoes | 2030Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2030 | 2030Trenchers | 2030Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2030 | 2030Welders | 2030Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2031 | 2031Aerial Lifts | 2031Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2031 | 2031Air Compressors | 2031Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2031 | 2031Bore/Drill Rigs | 2031Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2031 | 2031Cement and Mortar Mixers | 2031Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2031 | 2031Concrete/Industrial Saws | 2031Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2031 | 2031Cranes | 2031Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2031 | 2031Crawler Tractors | 2031Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2031 | 2031Crushing/Proc. Equipment | 2031Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2031 | 2031Dumpers/Tenders | 2031Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2031 | 2031Excavators | 2031Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2031 | 2031Forklifts | 2031Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2031 | 2031Generator Sets | 2031Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2031 | 2031Graders | 2031Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2031 | 2031Off-Highway Tractors | 2031Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2031 | 2031Off-Highway Trucks | 2031Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2031 | 2031Other Construction Equipment | 2031Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2031 | 2031Other General Industrial Equipmen | 2031Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2031 | 2031Other Material Handling Equipment | 2031Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2031 | 2031Pavers | 2031Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2031 | 2031Paving Equipment | 2031Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2031 | 2031Plate Compactors | 2031Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2031 | 2031Pressure Washers | 2031Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2031 | 2031Pumps | 2031Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2031 | 2031Rollers | 2031Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2031 | 2031Rough Terrain Forklifts | 2031Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2031 | 2031Rubber Tired Dozers | 2031Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2031 | 2031Rubber Tired Loaders | 2031Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2031 | 2031Scrapers | 2031Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2031 | 2031Signal Boards | 2031Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2031 | 2031Skid Steer Loaders | 2031Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2031 | 2031Surfacing Equipment | 2031Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2031 | 2031Sweepers/Scrubbers | 2031Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2031 | 2031Tractors/Loaders/Backhoes | 2031Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2031 | 2031Trenchers | 2031Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2031 | 2031Welders | 2031Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2033 | 2033Aerial Lifts | 2033Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2033 | 2033Air Compressors | 2033Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2033 | 2033Bore/Drill Rigs | 2033Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2033 | 2033Cement and Mortar Mixers | 2033Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2033 | 2033Concrete/Industrial Saws | 2033Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2033 | 2033Cranes | 2033Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2033 | 2033Crawler Tractors | 2033Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2033 | 2033Crushing/Proc. Equipment | 2033Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2033 | 2033Dumpers/Tenders | 2033Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2033 | 2033Excavators | 2033Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Forklifts | 2033Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2033 | 2033Generator Sets | 2033Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2033 | 2033Graders | 2033Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2033 | 2033Off-Highway Tractors | 2033Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2033 | 2033Off-Highway Trucks | 2033Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2033 | 2033Other Construction Equipment | 2033Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2033 | 2033Other General Industrial Equipmen | 2033Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2033 | 2033Other Material Handling Equipment | 2033Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2033 | 2033Pavers | 2033Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2033 | 2033Paving Equipment | 2033Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2033 | 2033Plate Compactors | 2033Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2033 | 2033Pressure Washers | 2033Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2033 | 2033Pumps | 2033Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2033 | 2033Rollers | 2033Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2033 | 2033Rough Terrain Forklifts | 2033Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2033 | 2033Rubber Tired Dozers | 2033Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2033 | 2033Rubber Tired Loaders | 2033Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2033 | 2033Scrapers | 2033Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2033 | 2033Signal Boards | 2033Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2033 | 2033Skid Steer Loaders | 2033Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2033 | 2033Surfacing Equipment | 2033Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2033 | 2033Sweepers/Scrubbers | 2033Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2033 | 2033Tractors/Loaders/Backhoes | 2033Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2033 | 2033Trenchers | 2033Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2033 | 2033Welders | 2033Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2035 | 2035Aerial Lifts | 2035Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2035 | 2035Air Compressors | 2035Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2035 | 2035Bore/Drill Rigs | 2035Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2035 | 2035Cement and Mortar Mixers | 2035Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2035 | 2035Concrete/Industrial Saws | 2035Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2035 | 2035Cranes | 2035Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2035 | 2035Crawler Tractors | 2035Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2035 | 2035Crushing/Proc. Equipment | 2035Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2035 | 2035Dumpers/Tenders | 2035Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2035 | 2035Excavators | 2035Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2035 | 2035Forklifts | 2035Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2035 | 2035Generator Sets | 2035Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2035 | 2035Graders | 2035Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2035 | 2035Off-Highway Tractors | 2035Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2035 | 2035Off-Highway Trucks | 2035Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2035 | 2035Other Construction Equipment | 2035Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2035 | 2035Other General Industrial Equipmen | 2035Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2035 | 2035Other Material Handling Equipment | 2035Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2035 | 2035Pavers | 2035Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2035 | 2035Paving Equipment | 2035Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2035 | 2035Plate Compactors | 2035Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2035 | 2035Pressure Washers | 2035Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2035 | 2035Pumps | 2035Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2035 | 2035Rollers | 2035Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2035 | 2035Rough Terrain Forklifts | 2035Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2035 | 2035Rubber Tired Dozers | 2035Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2035 | 2035Rubber Tired Loaders | 2035Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2035 | 2035Scrapers | 2035Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2035 | 2035Signal Boards | 2035Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2035 | 2035Skid Steer Loaders | 2035Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2035 | 2035Surfacing Equipment | 2035Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2035 | 2035Sweepers/Scrubbers | 2035Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2035 | 2035Tractors/Loaders/Backhoes | 2035Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2035 | 2035Trenchers | 2035Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2035 | 2035Welders | 2035Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2037 | 2037Aerial Lifts | 2037Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2037 | 2037Air Compressors | 2037Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2037 | 2037Bore/Drill Rigs | 2037Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2037 | 2037Cement and Mortar Mixers | 2037Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 2037Concrete/Industrial Saws | 2037Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2037 | 2037Cranes | 2037Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2037 | 2037Crawler Tractors | 2037Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2037 | 2037Crushing/Proc. Equipment | 2037Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2037 | 2037Dumpers/Tenders | 2037Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2037 | 2037Excavators | 2037Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2037 | 2037Forklifts | 2037Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2037 | 2037Generator Sets | 2037Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2037 | 2037Graders | 2037Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2037 | 2037Off-Highway Tractors | 2037Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2037 | 2037Off-Highway Trucks | 2037Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2037 | 2037Other Construction Equipment | 2037Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2037 | 2037Other General Industrial Equipmen | 2037Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2037 | 2037Other Material Handling Equipment | 2037Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2037 | 2037Pavers | 2037Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2037 | 2037Paving Equipment | 2037Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2037 | 2037Plate Compactors | 2037Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2037 | 2037Pressure Washers | 2037Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2037 | 2037Pumps | 2037Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2037 | 2037Rollers | 2037Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2037 | 2037Rough Terrain Forklifts | 2037Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2037 | 2037Rubber Tired Dozers | 2037Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2037 | 2037Rubber Tired Loaders | 2037Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2037 | 2037Scrapers | 2037Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2037 | 2037Signal Boards | 2037Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2037 | 2037Skid Steer Loaders | 2037Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2037 | 2037Surfacing Equipment | 2037Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2037 | 2037Sweepers/Scrubbers | 2037Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2037 | 2037Tractors/Loaders/Backhoes | 2037Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2037 | 2037Trenchers | 2037Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2037 | 2037Welders | 2037Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2038 | 2038Aerial Lifts | 2038Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2038 | 2038Air Compressors | 2038Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2038 | 2038Bore/Drill Rigs | 2038Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2038 | 2038Cement and Mortar Mixers | 2038Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2038 | 2038Concrete/Industrial Saws | 2038Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2038 | 2038Cranes | 2038Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2038 | 2038Crawler Tractors | 2038Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2038 | 2038Crushing/Proc. Equipment | 2038Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2038 | 2038Dumpers/Tenders | 2038Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2038 | 2038Excavators | 2038Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2038 | 2038Forklifts | 2038Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2038 | 2038Generator Sets | 2038Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2038 | 2038Graders | 2038Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2038 | 2038Off-Highway Tractors | 2038Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2038 | 2038Off-Highway Trucks | 2038Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2038 | 2038Other Construction Equipment | 2038Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2038 | 2038Other General Industrial Equipmen | 2038Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2038 | 2038Other Material Handling Equipment | 2038Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2038 | 2038Pavers | 2038Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2038 | 2038Paving Equipment | 2038Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2038 | 2038Plate Compactors | 2038Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2038 | 2038Pressure Washers | 2038Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2038 | 2038Pumps | 2038Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2038 | 2038Rollers | 2038Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2038 | 2038Rough Terrain Forklifts | 2038Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2038 | 2038Rubber Tired Dozers | 2038Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2038 | 2038Rubber Tired Loaders | 2038Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2038 | 2038Scrapers | 2038Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2038 | 2038Signal Boards | 2038Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2038 | 2038Skid Steer Loaders | 2038Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2038 | 2038Surfacing Equipment | 2038Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2038 | 2038Sweepers/Scrubbers | 2038Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2038 | 2038Tractors/Loaders/Backhoes | 2038Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Trenchers | 2038Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2038 | 2038Welders | 2038Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2041 | 2041Aerial Lifts | 2041Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2041 | 2041Air Compressors | 2041Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2041 | 2041Bore/Drill Rigs | 2041Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2041 | 2041Cement and Mortar Mixers | 2041Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2041 | 2041Concrete/Industrial Saws | 2041Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2041 | 2041Cranes | 2041Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2041 | 2041Crawler Tractors | 2041Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2041 | 2041Crushing/Proc. Equipment | 2041Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2041 | 2041Dumpers/Tenders | 2041Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2041 | 2041Excavators | 2041Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2041 | 2041Forklifts | 2041Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2041 | 2041Generator Sets | 2041Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2041 | 2041Graders | 2041Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2041 | 2041Off-Highway Tractors | 2041Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2041 | 2041Off-Highway Trucks | 2041Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2041 | 2041Other Construction Equipment | 2041Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2041 | 2041Other General Industrial Equipmen | 2041Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2041 | 2041Other Material Handling Equipment | 2041Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2041 | 2041Pavers | 2041Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2041 | 2041Paving Equipment | 2041Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2041 | 2041Plate Compactors | 2041Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2041 | 2041Pressure Washers | 2041Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2041 | 2041Pumps | 2041Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2041 | 2041Rollers | 2041Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2041 | 2041Rough Terrain Forklifts | 2041Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2041 | 2041Rubber Tired Dozers | 2041Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2041 | 2041Rubber Tired Loaders | 2041Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2041 | 2041Scrapers | 2041Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2041 | 2041Signal Boards | 2041Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2041 | 2041Skid Steer Loaders | 2041Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2041 | 2041Surfacing Equipment | 2041Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2041 | 2041Sweepers/Scrubbers | 2041Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2041 | 2041Tractors/Loaders/Backhoes | 2041Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2041 | 2041Trenchers | 2041Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2041 | 2041Welders | 2041Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |

Source: SCAQMD CEQA Handbook website: http://sfprod.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors
Emission factors only available up to 2025; therefore, it was conservatively assumed that the emission factors for years 2026 through 2035 were the same as 2025.
NOx/PM10/PM2.5/CO/VOC emission factors taken as the Tier 4f emission standards per the ARB's Diesel Off-road Equipment Regulation Table 3 (13 CCR 2449).
Default hp and load factor taken from CalEEMod User Guide Appendix D, Table 3.3 (September 2013).

**SCAQMD Offroad Emission Factors**

Source: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors.

| | | | | (lb/hr) | (lb/hr) | (lb/hr) | (lb/hr) | (lb/hr) | (lb/hr) | (lb/hr) |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
| 2014 | 2014Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0633 | 0.0001 | 0.0026 | 8.7 | 0.0009 |
| 2014 | 2014Aerial Lifts25 | Aerial Lifts | 25 | 0.0160 | 0.0494 | 0.0919 | 0.0001 | 0.0048 | 11.0 | 0.0014 |
| 2014 | 2014Aerial Lifts50 | Aerial Lifts | 50 | 0.0534 | 0.1694 | 0.1765 | 0.0003 | 0.0142 | 19.6 | 0.0048 |
| 2014 | 2014Aerial Lifts120 | Aerial Lifts | 120 | 0.0509 | 0.2400 | 0.3531 | 0.0004 | 0.0272 | 38.1 | 0.0046 |
| 2014 | 2014Aerial Lifts500 | Aerial Lifts | 500 | 0.1106 | 0.4444 | 1.3843 | 0.0021 | 0.0408 | 213 | 0.0100 |
| 2014 | 2014Aerial Lifts750 | Aerial Lifts | 750 | 0.2063 | 0.8033 | 2.5864 | 0.0039 | 0.0751 | 385 | 0.0186 |
| 2014 | 2014Aerial Lifts Composite | Aerial Lifts Composite | | 0.0483 | 0.1877 | 0.2867 | 0.0004 | 0.0184 | 34.7 | 0.0044 |
| 2014 | 2014Air Compressors15 | Air Compressors | 15 | 0.0114 | 0.0474 | 0.0697 | 0.0001 | 0.0044 | 7.2 | 0.0010 |
| 2014 | 2014Air Compressors25 | Air Compressors | 25 | 0.0247 | 0.0711 | 0.1275 | 0.0002 | 0.0075 | 14.4 | 0.0022 |
| 2014 | 2014Air Compressors50 | Air Compressors | 50 | 0.0831 | 0.2446 | 0.2134 | 0.0003 | 0.0201 | 22.3 | 0.0075 |
| 2014 | 2014Air Compressors120 | Air Compressors | 120 | 0.0758 | 0.3216 | 0.4682 | 0.0006 | 0.0416 | 47.0 | 0.0068 |
| 2014 | 2014Air Compressors175 | Air Compressors | 175 | 0.0984 | 0.5035 | 0.7837 | 0.0010 | 0.0431 | 88.5 | 0.0089 |
| 2014 | 2014Air Compressors250 | Air Compressors | 250 | 0.0948 | 0.2873 | 1.0299 | 0.0015 | 0.0316 | 131 | 0.0086 |
| 2014 | 2014Air Compressors500 | Air Compressors | 500 | 0.1543 | 0.5129 | 1.5945 | 0.0023 | 0.0519 | 232 | 0.0139 |
| 2014 | 2014Air Compressors750 | Air Compressors | 750 | 0.2412 | 0.7927 | 2.5509 | 0.0036 | 0.0819 | 358 | 0.0218 |
| 2014 | 2014Air Compressors1000 | Air Compressors | 1000 | 0.3865 | 1.2935 | 4.7637 | 0.0049 | 0.1363 | 486 | 0.0349 |
| 2014 | 2014Air Compressors Composite | Air Compressors Composite | | 0.0842 | 0.3313 | 0.5635 | 0.0007 | 0.0396 | 63.6 | 0.0076 |
| 2014 | 2014Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2014 | 2014Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1222 | 0.0002 | 0.0048 | 16.0 | 0.0017 |
| 2014 | 2014Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0255 | 0.2253 | 0.2394 | 0.0004 | 0.0095 | 31.0 | 0.0023 |
| 2014 | 2014Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0409 | 0.4684 | 0.4254 | 0.0009 | 0.0204 | 77.1 | 0.0037 |
| 2014 | 2014Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0671 | 0.7539 | 0.6527 | 0.0016 | 0.0246 | 141 | 0.0061 |
| 2014 | 2014Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0737 | 0.3426 | 0.6140 | 0.0021 | 0.0179 | 188 | 0.0066 |
| 2014 | 2014Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.1206 | 0.5512 | 0.9516 | 0.0031 | 0.0294 | 311 | 0.0109 |
| 2014 | 2014Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.2388 | 1.0890 | 1.8972 | 0.0062 | 0.0582 | 615 | 0.0215 |
| 2014 | 2014Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.3889 | 1.6591 | 5.4092 | 0.0093 | 0.1411 | 928 | 0.0351 |
| 2014 | 2014Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0729 | 0.5030 | 0.7136 | 0.0017 | 0.0248 | 165 | 0.0066 |
| 2014 | 2014Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0466 | 0.0001 | 0.0020 | 6.3 | 0.0007 |
| 2014 | 2014Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0259 | 0.0794 | 0.1481 | 0.0002 | 0.0078 | 17.6 | 0.0023 |
| 2014 | 2014Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0089 | 0.0420 | 0.0550 | 0.0001 | 0.0025 | 7.2 | 0.0008 |
| 2014 | 2014Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0048 | 16.5 | 0.0018 |
| 2014 | 2014Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0864 | 0.2825 | 0.2750 | 0.0004 | 0.0226 | 30.2 | 0.0078 |
| 2014 | 2014Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0978 | 0.4796 | 0.6733 | 0.0009 | 0.0538 | 74.1 | 0.0088 |
| 2014 | 2014Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.1457 | 0.8685 | 1.2772 | 0.0018 | 0.0645 | 160 | 0.0131 |
| 2014 | 2014Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0917 | 0.4031 | 0.5267 | 0.0007 | 0.0413 | 58.5 | 0.0083 |
| 2014 | 2014Cranes50 | Cranes | 50 | 0.0932 | 0.2808 | 0.2313 | 0.0003 | 0.0221 | 23.2 | 0.0084 |
| 2014 | 2014Cranes120 | Cranes | 120 | 0.0859 | 0.3587 | 0.5189 | 0.0006 | 0.0453 | 50.1 | 0.0078 |
| 2014 | 2014Cranes175 | Cranes | 175 | 0.0977 | 0.4806 | 0.7306 | 0.0009 | 0.0412 | 80.3 | 0.0088 |
| 2014 | 2014Cranes250 | Cranes | 250 | 0.0979 | 0.2817 | 0.9088 | 0.0013 | 0.0317 | 112 | 0.0088 |
| 2014 | 2014Cranes500 | Cranes | 500 | 0.1468 | 0.4948 | 1.2979 | 0.0018 | 0.0470 | 180 | 0.0132 |
| 2014 | 2014Cranes750 | Cranes | 750 | 0.2485 | 0.8312 | 2.2480 | 0.0030 | 0.0803 | 303 | 0.0224 |
| 2014 | 2014Cranes9999 | Cranes | 9999 | 0.9122 | 3.0993 | 9.8090 | 0.0098 | 0.3001 | 971 | 0.0823 |
| 2014 | 2014Cranes Composite | Cranes Composite | | 0.1276 | 0.4553 | 1.1066 | 0.0014 | 0.0466 | 129 | 0.0115 |
| 2014 | 2014Crawler Tractors50 | Crawler Tractors | 50 | 0.1094 | 0.3164 | 0.2544 | 0.0003 | 0.0251 | 24.9 | 0.0099 |
| 2014 | 2014Crawler Tractors120 | Crawler Tractors | 120 | 0.1217 | 0.4814 | 0.7280 | 0.0008 | 0.0627 | 65.8 | 0.0110 |
| 2014 | 2014Crawler Tractors175 | Crawler Tractors | 175 | 0.1594 | 0.7413 | 1.1857 | 0.0014 | 0.0663 | 121 | 0.0144 |
| 2014 | 2014Crawler Tractors250 | Crawler Tractors | 250 | 0.1672 | 0.4797 | 1.4702 | 0.0019 | 0.0562 | 166 | 0.0151 |
| 2014 | 2014Crawler Tractors500 | Crawler Tractors | 500 | 0.2420 | 0.8885 | 2.0637 | 0.0025 | 0.0798 | 259 | 0.0218 |
| 2014 | 2014Crawler Tractors750 | Crawler Tractors | 750 | 0.4355 | 1.5882 | 3.7861 | 0.0047 | 0.1446 | 465 | 0.0393 |
| 2014 | 2014Crawler Tractors1000 | Crawler Tractors | 1000 | 0.6595 | 2.5182 | 7.0047 | 0.0066 | 0.2228 | 658 | 0.0595 |
| 2014 | 2014Crawler Tractors Composite | Crawler Tractors Composite | | 0.1499 | 0.5767 | 1.0853 | 0.0013 | 0.0644 | 114 | 0.0135 |
| 2014 | 2014Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.1559 | 0.4812 | 0.4182 | 0.0006 | 0.0383 | 44.0 | 0.0141 |
| 2014 | 2014Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.1284 | 0.5703 | 0.8000 | 0.0010 | 0.0704 | 83.1 | 0.0116 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 2014Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1801 | 0.9583 | 1.4195 | 0.0019 | 0.0782 | 167 | 0.0163 |
| 2014 | 2014Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1744 | 0.5287 | 1.8241 | 0.0028 | 0.0562 | 245 | 0.0157 |
| 2014 | 2014Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.2480 | 0.8092 | 2.4341 | 0.0037 | 0.0801 | 374 | 0.0224 |
| 2014 | 2014Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3929 | 1.2625 | 3.9931 | 0.0059 | 0.1283 | 589 | 0.0354 |
| 2014 | 2014Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 1.0512 | 3.3574 | 12.4161 | 0.0131 | 0.3572 | 1,308 | 0.0948 |
| 2014 | 2014Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1597 | 0.6651 | 1.0867 | 0.0015 | 0.0677 | 132 | 0.0144 |
| 2014 | 2014Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0095 | 0.0317 | 0.0595 | 0.0001 | 0.0027 | 7.6 | 0.0009 |
| 2014 | 2014Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0095 | 0.0317 | 0.0595 | 0.0001 | 0.0027 | 7.6 | 0.0009 |
| 2014 | 2014Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2014 | 2014Excavators50 | Excavators | 50 | 0.0728 | 0.2757 | 0.2354 | 0.0003 | 0.0189 | 25.0 | 0.0066 |
| 2014 | 2014Excavators120 | Excavators | 120 | 0.0998 | 0.5137 | 0.6331 | 0.0009 | 0.0519 | 73.6 | 0.0090 |
| 2014 | 2014Excavators175 | Excavators | 175 | 0.1134 | 0.6660 | 0.8323 | 0.0013 | 0.0457 | 112 | 0.0102 |
| 2014 | 2014Excavators250 | Excavators | 250 | 0.1180 | 0.3480 | 1.0099 | 0.0018 | 0.0333 | 159 | 0.0106 |
| 2014 | 2014Excavators500 | Excavators | 500 | 0.1657 | 0.5102 | 1.3127 | 0.0023 | 0.0463 | 234 | 0.0149 |
| 2014 | 2014Excavators750 | Excavators | 750 | 0.2764 | 0.8452 | 2.2503 | 0.0039 | 0.0782 | 387 | 0.0249 |
| 2014 | 2014Excavators Composite | Excavators Composite | | 0.1143 | 0.5289 | 0.8299 | 0.0013 | 0.0428 | 120 | 0.0103 |
| 2014 | 2014Forklifts50 | Forklifts | 50 | 0.0381 | 0.1569 | 0.1376 | 0.0002 | 0.0106 | 14.7 | 0.0034 |
| 2014 | 2014Forklifts120 | Forklifts | 120 | 0.0390 | 0.2158 | 0.2571 | 0.0004 | 0.0206 | 31.2 | 0.0035 |
| 2014 | 2014Forklifts175 | Forklifts | 175 | 0.0524 | 0.3311 | 0.3883 | 0.0006 | 0.0214 | 56.1 | 0.0047 |
| 2014 | 2014Forklifts250 | Forklifts | 250 | 0.0542 | 0.1595 | 0.4606 | 0.0009 | 0.0149 | 77.1 | 0.0049 |
| 2014 | 2014Forklifts500 | Forklifts | 500 | 0.0752 | 0.2182 | 0.5845 | 0.0011 | 0.0206 | 111 | 0.0068 |
| 2014 | 2014Forklifts Composite | Forklifts Composite | | 0.0497 | 0.2215 | 0.3551 | 0.0006 | 0.0178 | 54.4 | 0.0045 |
| 2014 | 2014Generator Sets15 | Generator Sets | 15 | 0.0142 | 0.0670 | 0.0971 | 0.0002 | 0.0054 | 10.2 | 0.0013 |
| 2014 | 2014Generator Sets25 | Generator Sets | 25 | 0.0256 | 0.0868 | 0.1557 | 0.0002 | 0.0085 | 17.6 | 0.0023 |
| 2014 | 2014Generator Sets50 | Generator Sets | 50 | 0.0785 | 0.2545 | 0.2731 | 0.0004 | 0.0213 | 30.6 | 0.0071 |
| 2014 | 2014Generator Sets120 | Generator Sets | 120 | 0.1008 | 0.4857 | 0.7130 | 0.0009 | 0.0537 | 77.9 | 0.0091 |
| 2014 | 2014Generator Sets175 | Generator Sets | 175 | 0.1236 | 0.7367 | 1.1536 | 0.0016 | 0.0538 | 142 | 0.0112 |
| 2014 | 2014Generator Sets250 | Generator Sets | 250 | 0.1181 | 0.4248 | 1.5252 | 0.0024 | 0.0422 | 213 | 0.0107 |
| 2014 | 2014Generator Sets500 | Generator Sets | 500 | 0.1683 | 0.6904 | 2.1655 | 0.0033 | 0.0627 | 337 | 0.0152 |
| 2014 | 2014Generator Sets750 | Generator Sets | 750 | 0.2811 | 1.1145 | 3.6123 | 0.0055 | 0.1032 | 544 | 0.0254 |
| 2014 | 2014Generator Sets9999 | Generator Sets | 9999 | 0.7280 | 2.5702 | 9.5914 | 0.0105 | 0.2595 | 1,049 | 0.0657 |
| 2014 | 2014Generator Sets Composite | Generator Sets Composite | | 0.0702 | 0.2974 | 0.5083 | 0.0007 | 0.0296 | 61.0 | 0.0063 |
| 2014 | 2014Graders50 | Graders | 50 | 0.0985 | 0.3168 | 0.2668 | 0.0004 | 0.0239 | 27.5 | 0.0089 |
| 2014 | 2014Graders120 | Graders | 120 | 0.1166 | 0.5268 | 0.7270 | 0.0009 | 0.0614 | 75.0 | 0.0105 |
| 2014 | 2014Graders175 | Graders | 175 | 0.1386 | 0.7331 | 1.0511 | 0.0014 | 0.0577 | 124 | 0.0125 |
| 2014 | 2014Graders250 | Graders | 250 | 0.1407 | 0.4177 | 1.2844 | 0.0019 | 0.0445 | 172 | 0.0127 |
| 2014 | 2014Graders500 | Graders | 500 | 0.1759 | 0.5992 | 1.5242 | 0.0023 | 0.0550 | 229 | 0.0159 |
| 2014 | 2014Graders750 | Graders | 750 | 0.3746 | 1.2665 | 3.3218 | 0.0049 | 0.1182 | 486 | 0.0338 |
| 2014 | 2014Graders Composite | Graders Composite | | 0.1362 | 0.5987 | 1.0796 | 0.0015 | 0.0539 | 133 | 0.0123 |
| 2014 | 2014Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.2008 | 0.7118 | 1.1800 | 0.0011 | 0.1014 | 93.7 | 0.0181 |
| 2014 | 2014Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1960 | 0.8272 | 1.4624 | 0.0015 | 0.0820 | 130 | 0.0177 |
| 2014 | 2014Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1564 | 0.4499 | 1.3527 | 0.0015 | 0.0560 | 130 | 0.0141 |
| 2014 | 2014Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.6254 | 2.6908 | 5.4422 | 0.0057 | 0.2197 | 568 | 0.0564 |
| 2014 | 2014Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.9416 | 4.2058 | 9.6214 | 0.0082 | 0.3259 | 814 | 0.0850 |
| 2014 | 2014Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1986 | 0.7438 | 1.6111 | 0.0017 | 0.0767 | 151 | 0.0179 |
| 2014 | 2014Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.1355 | 0.7569 | 0.9614 | 0.0014 | 0.0539 | 125 | 0.0122 |
| 2014 | 2014Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.1326 | 0.3761 | 1.1048 | 0.0019 | 0.0368 | 167 | 0.0120 |
| 2014 | 2014Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.2065 | 0.6134 | 1.5945 | 0.0027 | 0.0567 | 272 | 0.0186 |
| 2014 | 2014Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.3371 | 0.9944 | 2.6748 | 0.0044 | 0.0937 | 442 | 0.0304 |
| 2014 | 2014Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.5191 | 1.5673 | 5.5862 | 0.0063 | 0.1665 | 625 | 0.0468 |
| 2014 | 2014Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.2034 | 0.6148 | 1.6679 | 0.0027 | 0.0579 | 260 | 0.0183 |
| 2014 | 2014Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2014 | 2014Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0160 | 0.0544 | 0.1010 | 0.0002 | 0.0039 | 13.2 | 0.0014 |
| 2014 | 2014Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0670 | 0.2573 | 0.2471 | 0.0004 | 0.0183 | 28.0 | 0.0060 |
| 2014 | 2014Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0915 | 0.5237 | 0.6571 | 0.0009 | 0.0503 | 80.9 | 0.0083 |
| 2014 | 2014Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0868 | 0.5867 | 0.7476 | 0.0012 | 0.0374 | 107 | 0.0078 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 2014Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1379 | 0.5080 | 1.3457 | 0.0025 | 0.0441 | 254 | 0.0124 |
| 2014 | 2014Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0820 | 0.3697 | 0.7168 | 0.0013 | 0.0296 | 123 | 0.0074 |
| 2014 | 2014Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2014 | 2014Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2014 | 2014Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0878 | 0.2626 | 0.2155 | 0.0003 | 0.0211 | 21.7 | 0.0079 |
| 2014 | 2014Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.1082 | 0.4435 | 0.6351 | 0.0007 | 0.0583 | 62.0 | 0.0098 |
| 2014 | 2014Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.1174 | 0.5703 | 0.8698 | 0.0011 | 0.0498 | 95.9 | 0.0106 |
| 2014 | 2014Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.1111 | 0.3089 | 1.0899 | 0.0015 | 0.0346 | 136 | 0.0100 |
| 2014 | 2014Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.2032 | 0.6064 | 1.8639 | 0.0026 | 0.0630 | 265 | 0.0183 |
| 2014 | 2014Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.3375 | 0.9995 | 3.1813 | 0.0044 | 0.1061 | 437 | 0.0305 |
| 2014 | 2014Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.4892 | 1.5297 | 5.6194 | 0.0056 | 0.1666 | 560 | 0.0441 |
| 2014 | 2014Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1448 | 0.4985 | 1.2360 | 0.0016 | 0.0527 | 152 | 0.0131 |
| 2014 | 2014Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.1219 | 0.3632 | 0.2997 | 0.0004 | 0.0293 | 30.3 | 0.0110 |
| 2014 | 2014Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.1051 | 0.4319 | 0.6201 | 0.0007 | 0.0568 | 60.7 | 0.0095 |
| 2014 | 2014Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.1481 | 0.7226 | 1.1054 | 0.0014 | 0.0631 | 122 | 0.0134 |
| 2014 | 2014Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.1174 | 0.3291 | 1.1643 | 0.0016 | 0.0368 | 145 | 0.0106 |
| 2014 | 2014Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1448 | 0.4365 | 1.3440 | 0.0019 | 0.0453 | 192 | 0.0131 |
| 2014 | 2014Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.6617 | 2.0216 | 7.4315 | 0.0073 | 0.2197 | 741 | 0.0597 |
| 2014 | 2014Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.1381 | 0.4814 | 1.2068 | 0.0015 | 0.0511 | 141 | 0.0125 |
| 2014 | 2014Pavers25 | Pavers | 25 | 0.0239 | 0.0788 | 0.1472 | 0.0002 | 0.0070 | 18.7 | 0.0022 |
| 2014 | 2014Pavers50 | Pavers | 50 | 0.1281 | 0.3506 | 0.2860 | 0.0004 | 0.0289 | 28.0 | 0.0116 |
| 2014 | 2014Pavers120 | Pavers | 120 | 0.1311 | 0.5011 | 0.7948 | 0.0008 | 0.0682 | 69.2 | 0.0118 |
| 2014 | 2014Pavers175 | Pavers | 175 | 0.1695 | 0.7742 | 1.3079 | 0.0014 | 0.0720 | 128 | 0.0153 |
| 2014 | 2014Pavers250 | Pavers | 250 | 0.1962 | 0.5822 | 1.8076 | 0.0022 | 0.0696 | 194 | 0.0177 |
| 2014 | 2014Pavers500 | Pavers | 500 | 0.2165 | 0.8647 | 1.9551 | 0.0023 | 0.0756 | 233 | 0.0195 |
| 2014 | 2014Pavers Composite | Pavers Composite | | 0.1429 | 0.5277 | 0.8112 | 0.0009 | 0.0564 | 77.9 | 0.0129 |
| 2014 | 2014Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0965 | 0.0002 | 0.0038 | 12.6 | 0.0014 |
| 2014 | 2014Paving Equipment50 | Paving Equipment | 50 | 0.1094 | 0.2974 | 0.2439 | 0.0003 | 0.0247 | 23.9 | 0.0099 |
| 2014 | 2014Paving Equipment120 | Paving Equipment | 120 | 0.1028 | 0.3923 | 0.6241 | 0.0006 | 0.0538 | 54.5 | 0.0093 |
| 2014 | 2014Paving Equipment175 | Paving Equipment | 175 | 0.1323 | 0.6049 | 1.0274 | 0.0011 | 0.0565 | 101 | 0.0119 |
| 2014 | 2014Paving Equipment250 | Paving Equipment | 250 | 0.1207 | 0.3595 | 1.1333 | 0.0014 | 0.0429 | 122 | 0.0109 |
| 2014 | 2014Paving Equipment Composite | Paving Equipment Composite | | 0.1082 | 0.4273 | 0.7312 | 0.0008 | 0.0502 | 68.9 | 0.0098 |
| 2014 | 2014Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2014 | 2014Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2014 | 2014Pressure Washers15 | Pressure Washers | 15 | 0.0068 | 0.0321 | 0.0465 | 0.0001 | 0.0026 | 4.9 | 0.0006 |
| 2014 | 2014Pressure Washers25 | Pressure Washers | 25 | 0.0104 | 0.0352 | 0.0631 | 0.0001 | 0.0035 | 7.1 | 0.0009 |
| 2014 | 2014Pressure Washers50 | Pressure Washers | 50 | 0.0281 | 0.1001 | 0.1230 | 0.0002 | 0.0085 | 14.3 | 0.0025 |
| 2014 | 2014Pressure Washers120 | Pressure Washers | 120 | 0.0274 | 0.1429 | 0.2101 | 0.0003 | 0.0143 | 24.1 | 0.0025 |
| 2014 | 2014Pressure Washers Composite | Pressure Washers Composite | | 0.0145 | 0.0603 | 0.0838 | 0.0001 | 0.0053 | 9.4 | 0.0013 |
| 2014 | 2014Pumps15 | Pumps | 15 | 0.0117 | 0.0488 | 0.0716 | 0.0001 | 0.0045 | 7.4 | 0.0011 |
| 2014 | 2014Pumps25 | Pumps | 25 | 0.0333 | 0.0959 | 0.1721 | 0.0002 | 0.0101 | 19.5 | 0.0030 |
| 2014 | 2014Pumps50 | Pumps | 50 | 0.0949 | 0.3004 | 0.3098 | 0.0004 | 0.0251 | 34.3 | 0.0086 |
| 2014 | 2014Pumps120 | Pumps | 120 | 0.1049 | 0.4934 | 0.7241 | 0.0009 | 0.0563 | 77.9 | 0.0095 |
| 2014 | 2014Pumps175 | Pumps | 175 | 0.1275 | 0.7382 | 1.1562 | 0.0016 | 0.0556 | 140 | 0.0115 |
| 2014 | 2014Pumps250 | Pumps | 250 | 0.1175 | 0.4096 | 1.4689 | 0.0023 | 0.0416 | 201 | 0.0106 |
| 2014 | 2014Pumps500 | Pumps | 500 | 0.1815 | 0.7226 | 2.2468 | 0.0034 | 0.0667 | 345 | 0.0164 |
| 2014 | 2014Pumps750 | Pumps | 750 | 0.3092 | 1.1947 | 3.8390 | 0.0057 | 0.1124 | 571 | 0.0279 |
| 2014 | 2014Pumps9999 | Pumps | 9999 | 0.9669 | 3.3910 | 12.5393 | 0.0136 | 0.3422 | 1,355 | 0.0872 |
| 2014 | 2014Pumps Composite | Pumps Composite | | 0.0683 | 0.2873 | 0.4427 | 0.0006 | 0.0295 | 49.6 | 0.0062 |
| 2014 | 2014Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2014 | 2014Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1019 | 0.0002 | 0.0040 | 13.3 | 0.0015 |
| 2014 | 2014Rollers50 | Rollers | 50 | 0.0947 | 0.2831 | 0.2492 | 0.0003 | 0.0226 | 26.0 | 0.0085 |
| 2014 | 2014Rollers120 | Rollers | 120 | 0.0921 | 0.4030 | 0.5906 | 0.0007 | 0.0494 | 59.0 | 0.0083 |
| 2014 | 2014Rollers175 | Rollers | 175 | 0.1178 | 0.6182 | 0.9537 | 0.0012 | 0.0510 | 108 | 0.0106 |
| 2014 | 2014Rollers250 | Rollers | 250 | 0.1180 | 0.3717 | 1.2002 | 0.0017 | 0.0407 | 153 | 0.0106 |
| 2014 | 2014Rollers500 | Rollers | 500 | 0.1555 | 0.5926 | 1.5340 | 0.0022 | 0.0537 | 219 | 0.0140 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 2014Rollers Composite | Rollers Composite | | 0.0912 | 0.4018 | 0.6164 | 0.0008 | 0.0419 | 67.1 | 0.0082 |
| 2014 | 2014Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.1055 | 0.3654 | 0.3185 | 0.0004 | 0.0271 | 33.9 | 0.0095 |
| 2014 | 2014Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0877 | 0.4292 | 0.5612 | 0.0007 | 0.0474 | 62.4 | 0.0079 |
| 2014 | 2014Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.1265 | 0.7246 | 0.9750 | 0.0014 | 0.0534 | 125 | 0.0114 |
| 2014 | 2014Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.1230 | 0.3717 | 1.1633 | 0.0019 | 0.0376 | 171 | 0.0111 |
| 2014 | 2014Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1745 | 0.5501 | 1.5313 | 0.0025 | 0.0529 | 257 | 0.0157 |
| 2014 | 2014Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0929 | 0.4608 | 0.6101 | 0.0008 | 0.0477 | 70.3 | 0.0084 |
| 2014 | 2014Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.2034 | 0.8392 | 1.4854 | 0.0015 | 0.0841 | 129 | 0.0183 |
| 2014 | 2014Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.2322 | 0.6560 | 1.9517 | 0.0021 | 0.0821 | 183 | 0.0209 |
| 2014 | 2014Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.3072 | 1.3307 | 2.5592 | 0.0026 | 0.1058 | 265 | 0.0277 |
| 2014 | 2014Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.4633 | 1.9954 | 3.9201 | 0.0040 | 0.1603 | 399 | 0.0418 |
| 2014 | 2014Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.7196 | 3.2150 | 7.1336 | 0.0060 | 0.2458 | 592 | 0.0649 |
| 2014 | 2014Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2854 | 1.1058 | 2.3867 | 0.0025 | 0.0993 | 239 | 0.0257 |
| 2014 | 2014Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0049 | 16.9 | 0.0018 |
| 2014 | 2014Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.1092 | 0.3535 | 0.3000 | 0.0004 | 0.0266 | 31.1 | 0.0099 |
| 2014 | 2014Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0902 | 0.4119 | 0.5654 | 0.0007 | 0.0477 | 58.9 | 0.0081 |
| 2014 | 2014Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.1168 | 0.6261 | 0.8915 | 0.0012 | 0.0489 | 106 | 0.0105 |
| 2014 | 2014Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.1186 | 0.3553 | 1.0966 | 0.0017 | 0.0375 | 149 | 0.0107 |
| 2014 | 2014Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1769 | 0.6085 | 1.5507 | 0.0023 | 0.0554 | 237 | 0.0160 |
| 2014 | 2014Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.3648 | 1.2450 | 3.2733 | 0.0049 | 0.1153 | 486 | 0.0329 |
| 2014 | 2014Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.4927 | 1.7350 | 5.6204 | 0.0060 | 0.1686 | 594 | 0.0445 |
| 2014 | 2014Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.1122 | 0.4683 | 0.8620 | 0.0012 | 0.0461 | 109 | 0.0101 |
| 2014 | 2014Scrapers120 | Scrapers | 120 | 0.1770 | 0.6882 | 1.0571 | 0.0011 | 0.0913 | 93.9 | 0.0160 |
| 2014 | 2014Scrapers175 | Scrapers | 175 | 0.1973 | 0.9065 | 1.4751 | 0.0017 | 0.0824 | 148 | 0.0178 |
| 2014 | 2014Scrapers250 | Scrapers | 250 | 0.2135 | 0.6146 | 1.8936 | 0.0024 | 0.0726 | 209 | 0.0193 |
| 2014 | 2014Scrapers500 | Scrapers | 500 | 0.3033 | 1.1355 | 2.6139 | 0.0032 | 0.1012 | 321 | 0.0274 |
| 2014 | 2014Scrapers750 | Scrapers | 750 | 0.5260 | 1.9562 | 4.6194 | 0.0056 | 0.1767 | 555 | 0.0475 |
| 2014 | 2014Scrapers Composite | Scrapers Composite | | 0.2648 | 0.9890 | 2.2371 | 0.0027 | 0.0928 | 262 | 0.0239 |
| 2014 | 2014Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2014 | 2014Signal Boards50 | Signal Boards | 50 | 0.1035 | 0.3331 | 0.3273 | 0.0005 | 0.0269 | 36.2 | 0.0093 |
| 2014 | 2014Signal Boards120 | Signal Boards | 120 | 0.1072 | 0.5163 | 0.7320 | 0.0009 | 0.0584 | 80.2 | 0.0097 |
| 2014 | 2014Signal Boards175 | Signal Boards | 175 | 0.1415 | 0.8317 | 1.2462 | 0.0017 | 0.0621 | 155 | 0.0128 |
| 2014 | 2014Signal Boards250 | Signal Boards | 250 | 0.1520 | 0.5213 | 1.8056 | 0.0029 | 0.0525 | 255 | 0.0137 |
| 2014 | 2014Signal Boards Composite | Signal Boards Composite | | 0.0181 | 0.0929 | 0.1332 | 0.0002 | 0.0071 | 16.7 | 0.0016 |
| 2014 | 2014Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0195 | 0.0610 | 0.1145 | 0.0002 | 0.0059 | 13.8 | 0.0018 |
| 2014 | 2014Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0443 | 0.2196 | 0.2161 | 0.0003 | 0.0134 | 25.5 | 0.0040 |
| 2014 | 2014Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0380 | 0.2727 | 0.3020 | 0.0005 | 0.0205 | 42.8 | 0.0034 |
| 2014 | 2014Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0406 | 0.2262 | 0.2369 | 0.0004 | 0.0152 | 30.3 | 0.0037 |
| 2014 | 2014Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0442 | 0.1367 | 0.1310 | 0.0002 | 0.0110 | 14.1 | 0.0040 |
| 2014 | 2014Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0904 | 0.4182 | 0.6174 | 0.0007 | 0.0477 | 63.8 | 0.0082 |
| 2014 | 2014Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0842 | 0.4716 | 0.7317 | 0.0010 | 0.0363 | 85.8 | 0.0076 |
| 2014 | 2014Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0955 | 0.3237 | 1.0228 | 0.0015 | 0.0341 | 135 | 0.0086 |
| 2014 | 2014Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1433 | 0.6069 | 1.5156 | 0.0022 | 0.0516 | 221 | 0.0129 |
| 2014 | 2014Surfacing Equipment750 | Surfacing Equipment | 750 | 0.2284 | 0.9503 | 2.4407 | 0.0035 | 0.0820 | 347 | 0.0206 |
| 2014 | 2014Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.1194 | 0.4930 | 1.1688 | 0.0017 | 0.0427 | 166 | 0.0108 |
| 2014 | 2014Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2014 | 2014Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0057 | 19.6 | 0.0021 |
| 2014 | 2014Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0911 | 0.3300 | 0.2939 | 0.0004 | 0.0241 | 31.6 | 0.0082 |
| 2014 | 2014Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0991 | 0.5098 | 0.6481 | 0.0009 | 0.0543 | 75.0 | 0.0089 |
| 2014 | 2014Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.1317 | 0.7996 | 1.0280 | 0.0016 | 0.0561 | 139 | 0.0119 |
| 2014 | 2014Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.1086 | 0.3327 | 1.0406 | 0.0018 | 0.0325 | 162 | 0.0098 |
| 2014 | 2014Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.1029 | 0.5086 | 0.6353 | 0.0009 | 0.0447 | 78.5 | 0.0093 |
| 2014 | 2014Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0193 | 0.0654 | 0.1228 | 0.0002 | 0.0052 | 15.9 | 0.0017 |
| 2014 | 2014Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0792 | 0.3103 | 0.2765 | 0.0004 | 0.0211 | 30.3 | 0.0071 |
| 2014 | 2014Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0634 | 0.3503 | 0.4252 | 0.0006 | 0.0337 | 51.7 | 0.0057 |
| 2014 | 2014Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0924 | 0.5857 | 0.7161 | 0.0011 | 0.0380 | 101 | 0.0083 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 2014Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.1142 | 0.3608 | 1.0294 | 0.0019 | 0.0330 | 172 | 0.0103 |
| 2014 | 2014Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.2186 | 0.7245 | 1.8255 | 0.0039 | 0.0627 | 345 | 0.0197 |
| 2014 | 2014Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.3304 | 1.0864 | 2.8317 | 0.0058 | 0.0958 | 517 | 0.0298 |
| 2014 | 2014Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0728 | 0.3747 | 0.4977 | 0.0008 | 0.0341 | 66.8 | 0.0066 |
| 2014 | 2014Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2014 | 2014Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0095 | 32.9 | 0.0036 |
| 2014 | 2014Trenchers50 | Trenchers | 50 | 0.1477 | 0.3990 | 0.3332 | 0.0004 | 0.0333 | 32.9 | 0.0133 |
| 2014 | 2014Trenchers120 | Trenchers | 120 | 0.1212 | 0.4640 | 0.7489 | 0.0008 | 0.0629 | 64.9 | 0.0109 |
| 2014 | 2014Trenchers175 | Trenchers | 175 | 0.1864 | 0.8579 | 1.4773 | 0.0016 | 0.0798 | 144 | 0.0168 |
| 2014 | 2014Trenchers250 | Trenchers | 250 | 0.2226 | 0.6786 | 2.0933 | 0.0025 | 0.0813 | 223 | 0.0201 |
| 2014 | 2014Trenchers500 | Trenchers | 500 | 0.2835 | 1.2125 | 2.6464 | 0.0031 | 0.1024 | 311 | 0.0256 |
| 2014 | 2014Trenchers750 | Trenchers | 750 | 0.5377 | 2.2784 | 5.0912 | 0.0059 | 0.1947 | 587 | 0.0485 |
| 2014 | 2014Trenchers Composite | Trenchers Composite | | 0.1350 | 0.4606 | 0.6384 | 0.0007 | 0.0517 | 58.7 | 0.0122 |
| 2014 | 2014Welders15 | Welders | 15 | 0.0098 | 0.0408 | 0.0599 | 0.0001 | 0.0038 | 6.2 | 0.0009 |
| 2014 | 2014Welders25 | Welders | 25 | 0.0193 | 0.0555 | 0.0996 | 0.0001 | 0.0058 | 11.3 | 0.0017 |
| 2014 | 2014Welders50 | Welders | 50 | 0.0886 | 0.2652 | 0.2435 | 0.0003 | 0.0219 | 26.0 | 0.0080 |
| 2014 | 2014Welders120 | Welders | 120 | 0.0601 | 0.2632 | 0.3850 | 0.0005 | 0.0328 | 39.5 | 0.0054 |
| 2014 | 2014Welders175 | Welders | 175 | 0.1021 | 0.5438 | 0.8502 | 0.0011 | 0.0448 | 98.2 | 0.0092 |
| 2014 | 2014Welders250 | Welders | 250 | 0.0801 | 0.2545 | 0.9129 | 0.0013 | 0.0274 | 119 | 0.0072 |
| 2014 | 2014Welders500 | Welders | 500 | 0.1028 | 0.3644 | 1.1332 | 0.0016 | 0.0359 | 168 | 0.0093 |
| 2014 | 2014Welders Composite | Welders Composite | | 0.0589 | 0.2041 | 0.2436 | 0.0003 | 0.0206 | 25.6 | 0.0053 |
| 2015 | 2015Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2015 | 2015Aerial Lifts25 | Aerial Lifts | 25 | 0.0155 | 0.0486 | 0.0902 | 0.0001 | 0.0046 | 11.0 | 0.0014 |
| 2015 | 2015Aerial Lifts50 | Aerial Lifts | 50 | 0.0480 | 0.1641 | 0.1699 | 0.0003 | 0.0129 | 19.6 | 0.0043 |
| 2015 | 2015Aerial Lifts120 | Aerial Lifts | 120 | 0.0460 | 0.2377 | 0.3272 | 0.0004 | 0.0246 | 38.1 | 0.0042 |
| 2015 | 2015Aerial Lifts500 | Aerial Lifts | 500 | 0.1026 | 0.4261 | 1.2422 | 0.0021 | 0.0368 | 213 | 0.0093 |
| 2015 | 2015Aerial Lifts750 | Aerial Lifts | 750 | 0.1912 | 0.7702 | 2.3263 | 0.0039 | 0.0680 | 385 | 0.0173 |
| 2015 | 2015Aerial Lifts Composite | Aerial Lifts Composite | | 0.0439 | 0.1837 | 0.2670 | 0.0004 | 0.0167 | 34.7 | 0.0040 |
| 2015 | 2015Air Compressors15 | Air Compressors | 15 | 0.0108 | 0.0466 | 0.0664 | 0.0001 | 0.0040 | 7.2 | 0.0010 |
| 2015 | 2015Air Compressors25 | Air Compressors | 25 | 0.0229 | 0.0681 | 0.1247 | 0.0002 | 0.0069 | 14.4 | 0.0021 |
| 2015 | 2015Air Compressors50 | Air Compressors | 50 | 0.0747 | 0.2360 | 0.2056 | 0.0003 | 0.0183 | 22.3 | 0.0067 |
| 2015 | 2015Air Compressors120 | Air Compressors | 120 | 0.0691 | 0.3182 | 0.4334 | 0.0006 | 0.0375 | 47.0 | 0.0062 |
| 2015 | 2015Air Compressors175 | Air Compressors | 175 | 0.0903 | 0.5019 | 0.7101 | 0.0010 | 0.0388 | 88.5 | 0.0082 |
| 2015 | 2015Air Compressors250 | Air Compressors | 250 | 0.0892 | 0.2803 | 0.9294 | 0.0015 | 0.0286 | 131 | 0.0080 |
| 2015 | 2015Air Compressors500 | Air Compressors | 500 | 0.1463 | 0.4915 | 1.4297 | 0.0023 | 0.0470 | 232 | 0.0132 |
| 2015 | 2015Air Compressors750 | Air Compressors | 750 | 0.2285 | 0.7595 | 2.2932 | 0.0036 | 0.0743 | 358 | 0.0206 |
| 2015 | 2015Air Compressors1000 | Air Compressors | 1000 | 0.3551 | 1.1843 | 4.4558 | 0.0049 | 0.1239 | 486 | 0.0320 |
| 2015 | 2015Air Compressors Composite | Air Compressors Composite | | 0.0773 | 0.3257 | 0.5175 | 0.0007 | 0.0357 | 63.6 | 0.0070 |
| 2015 | 2015Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2015 | 2015Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1220 | 0.0002 | 0.0047 | 16.0 | 0.0017 |
| 2015 | 2015Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0234 | 0.2235 | 0.2240 | 0.0004 | 0.0075 | 31.0 | 0.0021 |
| 2015 | 2015Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0376 | 0.4676 | 0.3736 | 0.0009 | 0.0160 | 77.1 | 0.0034 |
| 2015 | 2015Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0618 | 0.7540 | 0.5364 | 0.0016 | 0.0198 | 141 | 0.0056 |
| 2015 | 2015Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0681 | 0.3425 | 0.4900 | 0.0021 | 0.0144 | 188 | 0.0061 |
| 2015 | 2015Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.1118 | 0.5511 | 0.7692 | 0.0031 | 0.0236 | 311 | 0.0101 |
| 2015 | 2015Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.2212 | 1.0888 | 1.5301 | 0.0062 | 0.0466 | 615 | 0.0200 |
| 2015 | 2015Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.3562 | 1.6528 | 4.9704 | 0.0093 | 0.1194 | 928 | 0.0321 |
| 2015 | 2015Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0673 | 0.5022 | 0.6138 | 0.0017 | 0.0200 | 165 | 0.0061 |
| 2015 | 2015Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0464 | 0.0001 | 0.0019 | 6.3 | 0.0007 |
| 2015 | 2015Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0251 | 0.0782 | 0.1456 | 0.0002 | 0.0074 | 17.6 | 0.0023 |
| 2015 | 2015Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0088 | 0.0419 | 0.0545 | 0.0001 | 0.0024 | 7.2 | 0.0008 |
| 2015 | 2015Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2015 | 2015Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0782 | 0.2745 | 0.2652 | 0.0004 | 0.0206 | 30.2 | 0.0071 |
| 2015 | 2015Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0892 | 0.4759 | 0.6249 | 0.0009 | 0.0486 | 74.1 | 0.0080 |
| 2015 | 2015Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.1340 | 0.8674 | 1.1593 | 0.0018 | 0.0585 | 160 | 0.0121 |
| 2015 | 2015Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0835 | 0.3982 | 0.4921 | 0.0007 | 0.0374 | 58.5 | 0.0075 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 2015Cranes50 | Cranes | 50 | 0.0853 | 0.2729 | 0.2235 | 0.0003 | 0.0202 | 23.2 | 0.0077 |
| 2015 | 2015Cranes120 | Cranes | 120 | 0.0800 | 0.3559 | 0.4822 | 0.0006 | 0.0415 | 50.1 | 0.0072 |
| 2015 | 2015Cranes175 | Cranes | 175 | 0.0919 | 0.4794 | 0.6684 | 0.0009 | 0.0378 | 80.3 | 0.0083 |
| 2015 | 2015Cranes250 | Cranes | 250 | 0.0925 | 0.2713 | 0.8284 | 0.0013 | 0.0286 | 112 | 0.0083 |
| 2015 | 2015Cranes500 | Cranes | 500 | 0.1393 | 0.4663 | 1.1812 | 0.0018 | 0.0426 | 180 | 0.0126 |
| 2015 | 2015Cranes750 | Cranes | 750 | 0.2358 | 0.7835 | 2.0490 | 0.0030 | 0.0729 | 303 | 0.0213 |
| 2015 | 2015Cranes9999 | Cranes | 9999 | 0.8682 | 2.8913 | 9.2743 | 0.0098 | 0.2775 | 971 | 0.0783 |
| 2015 | 2015Cranes Composite | Cranes Composite | | 0.1204 | 0.4395 | 1.0200 | 0.0014 | 0.0426 | 129 | 0.0109 |
| 2015 | 2015Crawler Tractors50 | Crawler Tractors | 50 | 0.1017 | 0.3087 | 0.2464 | 0.0003 | 0.0232 | 24.9 | 0.0092 |
| 2015 | 2015Crawler Tractors120 | Crawler Tractors | 120 | 0.1143 | 0.4774 | 0.6815 | 0.0008 | 0.0579 | 65.8 | 0.0103 |
| 2015 | 2015Crawler Tractors175 | Crawler Tractors | 175 | 0.1509 | 0.7384 | 1.0951 | 0.0014 | 0.0614 | 121 | 0.0136 |
| 2015 | 2015Crawler Tractors250 | Crawler Tractors | 250 | 0.1582 | 0.4614 | 1.3531 | 0.0019 | 0.0514 | 166 | 0.0143 |
| 2015 | 2015Crawler Tractors500 | Crawler Tractors | 500 | 0.2300 | 0.8352 | 1.8987 | 0.0025 | 0.0732 | 259 | 0.0207 |
| 2015 | 2015Crawler Tractors750 | Crawler Tractors | 750 | 0.4140 | 1.4936 | 3.4863 | 0.0047 | 0.1327 | 465 | 0.0374 |
| 2015 | 2015Crawler Tractors1000 | Crawler Tractors | 1000 | 0.6278 | 2.3640 | 6.6574 | 0.0066 | 0.2075 | 658 | 0.0566 |
| 2015 | 2015Crawler Tractors Composite | Crawler Tractors Composite | | 0.1415 | 0.5650 | 1.0059 | 0.0013 | 0.0594 | 114 | 0.0128 |
| 2015 | 2015Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.1392 | 0.4644 | 0.4024 | 0.0006 | 0.0346 | 44.0 | 0.0126 |
| 2015 | 2015Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.1167 | 0.5646 | 0.7374 | 0.0010 | 0.0629 | 83.1 | 0.0105 |
| 2015 | 2015Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1654 | 0.9559 | 1.2783 | 0.0019 | 0.0700 | 167 | 0.0149 |
| 2015 | 2015Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1646 | 0.5171 | 1.6355 | 0.0028 | 0.0506 | 245 | 0.0149 |
| 2015 | 2015Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.2358 | 0.7790 | 2.1722 | 0.0037 | 0.0722 | 374 | 0.0213 |
| 2015 | 2015Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3723 | 1.2184 | 3.5561 | 0.0059 | 0.1154 | 589 | 0.0336 |
| 2015 | 2015Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.9726 | 3.0901 | 11.5626 | 0.0131 | 0.3225 | 1,308 | 0.0878 |
| 2015 | 2015Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1465 | 0.6549 | 0.9893 | 0.0015 | 0.0607 | 132 | 0.0132 |
| 2015 | 2015Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0093 | 0.0315 | 0.0591 | 0.0001 | 0.0025 | 7.6 | 0.0008 |
| 2015 | 2015Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0093 | 0.0315 | 0.0591 | 0.0001 | 0.0025 | 7.6 | 0.0008 |
| 2015 | 2015Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2015 | 2015Excavators50 | Excavators | 50 | 0.0650 | 0.2683 | 0.2256 | 0.0003 | 0.0167 | 25.0 | 0.0059 |
| 2015 | 2015Excavators120 | Excavators | 120 | 0.0912 | 0.5102 | 0.5787 | 0.0009 | 0.0455 | 73.6 | 0.0082 |
| 2015 | 2015Excavators175 | Excavators | 175 | 0.1052 | 0.6653 | 0.7408 | 0.0013 | 0.0405 | 112 | 0.0095 |
| 2015 | 2015Excavators250 | Excavators | 250 | 0.1117 | 0.3431 | 0.8935 | 0.0018 | 0.0297 | 159 | 0.0101 |
| 2015 | 2015Excavators500 | Excavators | 500 | 0.1577 | 0.4964 | 1.1619 | 0.0023 | 0.0413 | 234 | 0.0142 |
| 2015 | 2015Excavators750 | Excavators | 750 | 0.2630 | 0.8225 | 1.9926 | 0.0039 | 0.0698 | 387 | 0.0237 |
| 2015 | 2015Excavators Composite | Excavators Composite | | 0.1064 | 0.5248 | 0.7416 | 0.0013 | 0.0379 | 120 | 0.0096 |
| 2015 | 2015Forklifts50 | Forklifts | 50 | 0.0324 | 0.1522 | 0.1324 | 0.0002 | 0.0092 | 14.7 | 0.0029 |
| 2015 | 2015Forklifts120 | Forklifts | 120 | 0.0345 | 0.2143 | 0.2326 | 0.0004 | 0.0174 | 31.2 | 0.0031 |
| 2015 | 2015Forklifts175 | Forklifts | 175 | 0.0486 | 0.3316 | 0.3442 | 0.0006 | 0.0189 | 56.1 | 0.0044 |
| 2015 | 2015Forklifts250 | Forklifts | 250 | 0.0518 | 0.1582 | 0.4040 | 0.0009 | 0.0133 | 77.1 | 0.0047 |
| 2015 | 2015Forklifts500 | Forklifts | 500 | 0.0724 | 0.2164 | 0.5170 | 0.0011 | 0.0185 | 111 | 0.0065 |
| 2015 | 2015Forklifts Composite | Forklifts Composite | | 0.0459 | 0.2200 | 0.3163 | 0.0006 | 0.0156 | 54.4 | 0.0041 |
| 2015 | 2015Generator Sets15 | Generator Sets | 15 | 0.0135 | 0.0658 | 0.0929 | 0.0002 | 0.0051 | 10.2 | 0.0012 |
| 2015 | 2015Generator Sets25 | Generator Sets | 25 | 0.0247 | 0.0831 | 0.1522 | 0.0002 | 0.0080 | 17.6 | 0.0022 |
| 2015 | 2015Generator Sets50 | Generator Sets | 50 | 0.0706 | 0.2465 | 0.2628 | 0.0004 | 0.0193 | 30.6 | 0.0064 |
| 2015 | 2015Generator Sets120 | Generator Sets | 120 | 0.0910 | 0.4811 | 0.6607 | 0.0009 | 0.0484 | 77.9 | 0.0082 |
| 2015 | 2015Generator Sets175 | Generator Sets | 175 | 0.1120 | 0.7350 | 1.0463 | 0.0016 | 0.0485 | 142 | 0.0101 |
| 2015 | 2015Generator Sets250 | Generator Sets | 250 | 0.1090 | 0.4148 | 1.3776 | 0.0024 | 0.0381 | 213 | 0.0098 |
| 2015 | 2015Generator Sets500 | Generator Sets | 500 | 0.1556 | 0.6639 | 1.9429 | 0.0033 | 0.0567 | 337 | 0.0140 |
| 2015 | 2015Generator Sets750 | Generator Sets | 750 | 0.2599 | 1.0718 | 3.2483 | 0.0055 | 0.0934 | 544 | 0.0234 |
| 2015 | 2015Generator Sets9999 | Generator Sets | 9999 | 0.6582 | 2.3655 | 8.9789 | 0.0105 | 0.2325 | 1,049 | 0.0594 |
| 2015 | 2015Generator Sets Composite | Generator Sets Composite | | 0.0640 | 0.2913 | 0.4717 | 0.0007 | 0.0268 | 61.0 | 0.0058 |
| 2015 | 2015Graders50 | Graders | 50 | 0.0897 | 0.3082 | 0.2569 | 0.0004 | 0.0217 | 27.5 | 0.0081 |
| 2015 | 2015Graders120 | Graders | 120 | 0.1081 | 0.5230 | 0.6726 | 0.0009 | 0.0555 | 75.0 | 0.0098 |
| 2015 | 2015Graders175 | Graders | 175 | 0.1299 | 0.7319 | 0.9534 | 0.0014 | 0.0526 | 124 | 0.0117 |
| 2015 | 2015Graders250 | Graders | 250 | 0.1326 | 0.4046 | 1.1596 | 0.0019 | 0.0400 | 172 | 0.0120 |
| 2015 | 2015Graders500 | Graders | 500 | 0.1666 | 0.5739 | 1.3760 | 0.0023 | 0.0496 | 229 | 0.0150 |
| 2015 | 2015Graders750 | Graders | 750 | 0.3549 | 1.2133 | 3.0011 | 0.0049 | 0.1066 | 486 | 0.0320 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 2015Graders Composite | Graders Composite | | 0.1277 | 0.5931 | 0.9795 | 0.0015 | 0.0489 | 133 | 0.0115 |
| 2015 | 2015Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1905 | 0.7051 | 1.1159 | 0.0011 | 0.0952 | 93.7 | 0.0172 |
| 2015 | 2015Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1870 | 0.8216 | 1.3703 | 0.0015 | 0.0771 | 130 | 0.0169 |
| 2015 | 2015Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1489 | 0.4320 | 1.2644 | 0.0015 | 0.0520 | 130 | 0.0134 |
| 2015 | 2015Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.5975 | 2.5165 | 5.0885 | 0.0057 | 0.2047 | 568 | 0.0539 |
| 2015 | 2015Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.9006 | 3.9378 | 9.2072 | 0.0082 | 0.3063 | 814 | 0.0813 |
| 2015 | 2015Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1893 | 0.7244 | 1.5085 | 0.0017 | 0.0717 | 151 | 0.0171 |
| 2015 | 2015Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.1259 | 0.7559 | 0.8596 | 0.0014 | 0.0477 | 125 | 0.0114 |
| 2015 | 2015Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.1252 | 0.3702 | 0.9818 | 0.0019 | 0.0328 | 167 | 0.0113 |
| 2015 | 2015Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1960 | 0.5949 | 1.4165 | 0.0027 | 0.0505 | 272 | 0.0177 |
| 2015 | 2015Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.3198 | 0.9645 | 2.3779 | 0.0044 | 0.0835 | 442 | 0.0289 |
| 2015 | 2015Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.4873 | 1.4801 | 5.2216 | 0.0063 | 0.1505 | 625 | 0.0440 |
| 2015 | 2015Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1924 | 0.5974 | 1.4932 | 0.0027 | 0.0516 | 260 | 0.0174 |
| 2015 | 2015Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2015 | 2015Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0039 | 13.2 | 0.0014 |
| 2015 | 2015Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0597 | 0.2506 | 0.2369 | 0.0004 | 0.0162 | 28.0 | 0.0054 |
| 2015 | 2015Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0827 | 0.5202 | 0.6012 | 0.0009 | 0.0441 | 80.9 | 0.0075 |
| 2015 | 2015Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0796 | 0.5864 | 0.6636 | 0.0012 | 0.0331 | 107 | 0.0072 |
| 2015 | 2015Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1310 | 0.4963 | 1.1867 | 0.0025 | 0.0394 | 254 | 0.0118 |
| 2015 | 2015Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0768 | 0.3645 | 0.6392 | 0.0013 | 0.0264 | 123 | 0.0069 |
| 2015 | 2015Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2015 | 2015Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2015 | 2015Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0786 | 0.2532 | 0.2077 | 0.0003 | 0.0191 | 21.7 | 0.0071 |
| 2015 | 2015Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0987 | 0.4387 | 0.5864 | 0.0007 | 0.0521 | 62.0 | 0.0089 |
| 2015 | 2015Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.1083 | 0.5684 | 0.7866 | 0.0011 | 0.0448 | 95.9 | 0.0098 |
| 2015 | 2015Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.1050 | 0.3015 | 0.9812 | 0.0015 | 0.0312 | 136 | 0.0095 |
| 2015 | 2015Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1931 | 0.5811 | 1.6702 | 0.0026 | 0.0569 | 265 | 0.0174 |
| 2015 | 2015Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.3208 | 0.9578 | 2.8569 | 0.0044 | 0.0959 | 437 | 0.0289 |
| 2015 | 2015Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.4546 | 1.4023 | 5.2482 | 0.0056 | 0.1513 | 560 | 0.0410 |
| 2015 | 2015Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1355 | 0.4843 | 1.1215 | 0.0016 | 0.0475 | 152 | 0.0122 |
| 2015 | 2015Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.1090 | 0.3501 | 0.2887 | 0.0004 | 0.0265 | 30.3 | 0.0098 |
| 2015 | 2015Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0959 | 0.4271 | 0.5727 | 0.0007 | 0.0509 | 60.7 | 0.0087 |
| 2015 | 2015Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.1365 | 0.7201 | 0.9997 | 0.0014 | 0.0567 | 122 | 0.0123 |
| 2015 | 2015Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.1109 | 0.3211 | 1.0483 | 0.0016 | 0.0332 | 145 | 0.0100 |
| 2015 | 2015Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1376 | 0.4182 | 1.2042 | 0.0019 | 0.0409 | 192 | 0.0124 |
| 2015 | 2015Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.6190 | 1.8527 | 6.9410 | 0.0073 | 0.1995 | 741 | 0.0558 |
| 2015 | 2015Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.1289 | 0.4698 | 1.0967 | 0.0015 | 0.0460 | 141 | 0.0116 |
| 2015 | 2015Pavers25 | Pavers | 25 | 0.0234 | 0.0780 | 0.1458 | 0.0002 | 0.0066 | 18.7 | 0.0021 |
| 2015 | 2015Pavers50 | Pavers | 50 | 0.1198 | 0.3421 | 0.2775 | 0.0004 | 0.0271 | 28.0 | 0.0108 |
| 2015 | 2015Pavers120 | Pavers | 120 | 0.1235 | 0.4969 | 0.7477 | 0.0008 | 0.0636 | 69.2 | 0.0111 |
| 2015 | 2015Pavers175 | Pavers | 175 | 0.1608 | 0.7707 | 1.2155 | 0.0014 | 0.0673 | 128 | 0.0145 |
| 2015 | 2015Pavers250 | Pavers | 250 | 0.1858 | 0.5585 | 1.6747 | 0.0022 | 0.0640 | 194 | 0.0168 |
| 2015 | 2015Pavers500 | Pavers | 500 | 0.2059 | 0.8113 | 1.8097 | 0.0023 | 0.0697 | 233 | 0.0186 |
| 2015 | 2015Pavers Composite | Pavers Composite | | 0.1347 | 0.5203 | 0.7607 | 0.0009 | 0.0526 | 77.9 | 0.0122 |
| 2015 | 2015Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0037 | 12.6 | 0.0014 |
| 2015 | 2015Paving Equipment50 | Paving Equipment | 50 | 0.1023 | 0.2901 | 0.2367 | 0.0003 | 0.0231 | 23.9 | 0.0092 |
| 2015 | 2015Paving Equipment120 | Paving Equipment | 120 | 0.0969 | 0.3891 | 0.5874 | 0.0006 | 0.0503 | 54.5 | 0.0087 |
| 2015 | 2015Paving Equipment175 | Paving Equipment | 175 | 0.1254 | 0.6025 | 0.9549 | 0.0011 | 0.0528 | 101 | 0.0113 |
| 2015 | 2015Paving Equipment250 | Paving Equipment | 250 | 0.1140 | 0.3441 | 1.0498 | 0.0014 | 0.0394 | 122 | 0.0103 |
| 2015 | 2015Paving Equipment Composite | Paving Equipment Composite | | 0.1023 | 0.4234 | 0.6842 | 0.0008 | 0.0469 | 68.9 | 0.0092 |
| 2015 | 2015Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2015 | 2015Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2015 | 2015Pressure Washers15 | Pressure Washers | 15 | 0.0065 | 0.0315 | 0.0445 | 0.0001 | 0.0024 | 4.9 | 0.0006 |
| 2015 | 2015Pressure Washers25 | Pressure Washers | 25 | 0.0100 | 0.0337 | 0.0617 | 0.0001 | 0.0033 | 7.1 | 0.0009 |
| 2015 | 2015Pressure Washers50 | Pressure Washers | 50 | 0.0251 | 0.0970 | 0.1183 | 0.0002 | 0.0077 | 14.3 | 0.0023 |
| 2015 | 2015Pressure Washers120 | Pressure Washers | 120 | 0.0245 | 0.1416 | 0.1947 | 0.0003 | 0.0128 | 24.1 | 0.0022 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 2015Pressure Washers Composite | Pressure Washers Composite | | 0.0133 | 0.0590 | 0.0799 | 0.0001 | 0.0049 | 9.4 | 0.0012 |
| 2015 | 2015Pumps15 | Pumps | 15 | 0.0111 | 0.0479 | 0.0683 | 0.0001 | 0.0041 | 7.4 | 0.0010 |
| 2015 | 2015Pumps25 | Pumps | 25 | 0.0309 | 0.0919 | 0.1682 | 0.0002 | 0.0094 | 19.5 | 0.0028 |
| 2015 | 2015Pumps50 | Pumps | 50 | 0.0855 | 0.2910 | 0.2982 | 0.0004 | 0.0228 | 34.3 | 0.0077 |
| 2015 | 2015Pumps120 | Pumps | 120 | 0.0949 | 0.4887 | 0.6710 | 0.0009 | 0.0508 | 77.9 | 0.0086 |
| 2015 | 2015Pumps175 | Pumps | 175 | 0.1158 | 0.7365 | 1.0489 | 0.0016 | 0.0502 | 140 | 0.0104 |
| 2015 | 2015Pumps250 | Pumps | 250 | 0.1088 | 0.3998 | 1.3270 | 0.0023 | 0.0376 | 201 | 0.0098 |
| 2015 | 2015Pumps500 | Pumps | 500 | 0.1686 | 0.6929 | 2.0163 | 0.0034 | 0.0603 | 345 | 0.0152 |
| 2015 | 2015Pumps750 | Pumps | 750 | 0.2872 | 1.1454 | 3.4529 | 0.0057 | 0.1018 | 571 | 0.0259 |
| 2015 | 2015Pumps9999 | Pumps | 9999 | 0.8773 | 3.1134 | 11.7387 | 0.0136 | 0.3072 | 1,355 | 0.0792 |
| 2015 | 2015Pumps Composite | Pumps Composite | | 0.0621 | 0.2825 | 0.4121 | 0.0006 | 0.0267 | 49.6 | 0.0056 |
| 2015 | 2015Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2015 | 2015Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1018 | 0.0002 | 0.0039 | 13.3 | 0.0015 |
| 2015 | 2015Rollers50 | Rollers | 50 | 0.0871 | 0.2754 | 0.2405 | 0.0003 | 0.0209 | 26.0 | 0.0079 |
| 2015 | 2015Rollers120 | Rollers | 120 | 0.0857 | 0.4000 | 0.5498 | 0.0007 | 0.0454 | 59.0 | 0.0077 |
| 2015 | 2015Rollers175 | Rollers | 175 | 0.1104 | 0.6166 | 0.8731 | 0.0012 | 0.0470 | 108 | 0.0100 |
| 2015 | 2015Rollers250 | Rollers | 250 | 0.1107 | 0.3575 | 1.0948 | 0.0017 | 0.0368 | 153 | 0.0100 |
| 2015 | 2015Rollers500 | Rollers | 500 | 0.1468 | 0.5595 | 1.3956 | 0.0022 | 0.0487 | 219 | 0.0132 |
| 2015 | 2015Rollers Composite | Rollers Composite | | 0.0851 | 0.3979 | 0.5706 | 0.0008 | 0.0386 | 67.1 | 0.0077 |
| 2015 | 2015Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0942 | 0.3551 | 0.3066 | 0.0004 | 0.0243 | 33.9 | 0.0085 |
| 2015 | 2015Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0801 | 0.4260 | 0.5164 | 0.0007 | 0.0420 | 62.4 | 0.0072 |
| 2015 | 2015Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.1171 | 0.7240 | 0.8746 | 0.0014 | 0.0477 | 125 | 0.0106 |
| 2015 | 2015Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.1168 | 0.3650 | 1.0385 | 0.0019 | 0.0338 | 171 | 0.0105 |
| 2015 | 2015Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1668 | 0.5337 | 1.3642 | 0.0025 | 0.0477 | 257 | 0.0150 |
| 2015 | 2015Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0850 | 0.4577 | 0.5588 | 0.0008 | 0.0423 | 70.3 | 0.0077 |
| 2015 | 2015Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1942 | 0.8333 | 1.3944 | 0.0015 | 0.0790 | 129 | 0.0175 |
| 2015 | 2015Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.2209 | 0.6304 | 1.8273 | 0.0021 | 0.0762 | 183 | 0.0199 |
| 2015 | 2015Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2932 | 1.2456 | 2.3951 | 0.0026 | 0.0985 | 265 | 0.0265 |
| 2015 | 2015Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.4423 | 1.8685 | 3.6712 | 0.0040 | 0.1494 | 399 | 0.0399 |
| 2015 | 2015Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.6883 | 3.0139 | 6.8297 | 0.0060 | 0.2311 | 592 | 0.0621 |
| 2015 | 2015Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2721 | 1.0420 | 2.2344 | 0.0025 | 0.0924 | 239 | 0.0246 |
| 2015 | 2015Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0049 | 16.9 | 0.0018 |
| 2015 | 2015Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0993 | 0.3438 | 0.2888 | 0.0004 | 0.0242 | 31.1 | 0.0090 |
| 2015 | 2015Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0835 | 0.4090 | 0.5226 | 0.0007 | 0.0431 | 58.9 | 0.0075 |
| 2015 | 2015Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.1094 | 0.6251 | 0.8077 | 0.0012 | 0.0445 | 106 | 0.0099 |
| 2015 | 2015Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.1118 | 0.3444 | 0.9890 | 0.0017 | 0.0337 | 149 | 0.0101 |
| 2015 | 2015Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1678 | 0.5818 | 1.3980 | 0.0023 | 0.0499 | 237 | 0.0151 |
| 2015 | 2015Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.3459 | 1.1905 | 2.9534 | 0.0049 | 0.1040 | 486 | 0.0312 |
| 2015 | 2015Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.4657 | 1.6412 | 5.2967 | 0.0060 | 0.1552 | 594 | 0.0420 |
| 2015 | 2015Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.1050 | 0.4615 | 0.7838 | 0.0012 | 0.0416 | 109 | 0.0095 |
| 2015 | 2015Scrapers120 | Scrapers | 120 | 0.1665 | 0.6826 | 0.9915 | 0.0011 | 0.0846 | 93.9 | 0.0150 |
| 2015 | 2015Scrapers175 | Scrapers | 175 | 0.1871 | 0.9030 | 1.3657 | 0.0017 | 0.0766 | 148 | 0.0169 |
| 2015 | 2015Scrapers250 | Scrapers | 250 | 0.2021 | 0.5906 | 1.7470 | 0.0024 | 0.0665 | 209 | 0.0182 |
| 2015 | 2015Scrapers500 | Scrapers | 500 | 0.2883 | 1.0688 | 2.4104 | 0.0032 | 0.0930 | 321 | 0.0260 |
| 2015 | 2015Scrapers750 | Scrapers | 750 | 0.5001 | 1.8419 | 4.2634 | 0.0056 | 0.1624 | 555 | 0.0451 |
| 2015 | 2015Scrapers Composite | Scrapers Composite | | 0.2513 | 0.9443 | 2.0647 | 0.0027 | 0.0854 | 262 | 0.0227 |
| 2015 | 2015Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2015 | 2015Signal Boards50 | Signal Boards | 50 | 0.0931 | 0.3227 | 0.3148 | 0.0005 | 0.0243 | 36.2 | 0.0084 |
| 2015 | 2015Signal Boards120 | Signal Boards | 120 | 0.0970 | 0.5116 | 0.6762 | 0.0009 | 0.0525 | 80.2 | 0.0088 |
| 2015 | 2015Signal Boards175 | Signal Boards | 175 | 0.1290 | 0.8300 | 1.1249 | 0.0017 | 0.0559 | 155 | 0.0116 |
| 2015 | 2015Signal Boards250 | Signal Boards | 250 | 0.1416 | 0.5098 | 1.6229 | 0.0029 | 0.0474 | 255 | 0.0128 |
| 2015 | 2015Signal Boards Composite | Signal Boards Composite | | 0.0171 | 0.0925 | 0.1250 | 0.0002 | 0.0066 | 16.7 | 0.0015 |
| 2015 | 2015Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0189 | 0.0601 | 0.1125 | 0.0002 | 0.0056 | 13.8 | 0.0017 |
| 2015 | 2015Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0378 | 0.2138 | 0.2052 | 0.0003 | 0.0113 | 25.5 | 0.0034 |
| 2015 | 2015Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0334 | 0.2710 | 0.2699 | 0.0005 | 0.0170 | 42.8 | 0.0030 |
| 2015 | 2015Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0352 | 0.2220 | 0.2198 | 0.0004 | 0.0128 | 30.3 | 0.0032 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 2015Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0408 | 0.1333 | 0.1263 | 0.0002 | 0.0101 | 14.1 | 0.0037 |
| 2015 | 2015Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0840 | 0.4151 | 0.5756 | 0.0007 | 0.0439 | 63.8 | 0.0076 |
| 2015 | 2015Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0787 | 0.4705 | 0.6706 | 0.0010 | 0.0335 | 85.8 | 0.0071 |
| 2015 | 2015Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0891 | 0.3116 | 0.9338 | 0.0015 | 0.0309 | 135 | 0.0080 |
| 2015 | 2015Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1342 | 0.5759 | 1.3809 | 0.0022 | 0.0468 | 221 | 0.0121 |
| 2015 | 2015Surfacing Equipment750 | Surfacing Equipment | 750 | 0.2139 | 0.9020 | 2.2264 | 0.0035 | 0.0745 | 347 | 0.0193 |
| 2015 | 2015Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.1116 | 0.4705 | 1.0675 | 0.0017 | 0.0389 | 166 | 0.0101 |
| 2015 | 2015Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2015 | 2015Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2015 | 2015Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0782 | 0.3186 | 0.2828 | 0.0004 | 0.0211 | 31.6 | 0.0071 |
| 2015 | 2015Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0880 | 0.5056 | 0.5893 | 0.0009 | 0.0466 | 75.0 | 0.0079 |
| 2015 | 2015Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.1193 | 0.7999 | 0.9051 | 0.0016 | 0.0488 | 139 | 0.0108 |
| 2015 | 2015Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.1029 | 0.3286 | 0.9094 | 0.0018 | 0.0289 | 162 | 0.0093 |
| 2015 | 2015Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0913 | 0.5034 | 0.5746 | 0.0009 | 0.0387 | 78.5 | 0.0082 |
| 2015 | 2015Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0192 | 0.0653 | 0.1221 | 0.0002 | 0.0049 | 15.9 | 0.0017 |
| 2015 | 2015Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0702 | 0.3020 | 0.2646 | 0.0004 | 0.0186 | 30.3 | 0.0063 |
| 2015 | 2015Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0577 | 0.3480 | 0.3870 | 0.0006 | 0.0293 | 51.7 | 0.0052 |
| 2015 | 2015Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0854 | 0.5853 | 0.6331 | 0.0011 | 0.0335 | 101 | 0.0077 |
| 2015 | 2015Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.1082 | 0.3566 | 0.9047 | 0.0019 | 0.0294 | 172 | 0.0098 |
| 2015 | 2015Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.2085 | 0.7089 | 1.6070 | 0.0039 | 0.0559 | 345 | 0.0188 |
| 2015 | 2015Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.3148 | 1.0631 | 2.4922 | 0.0058 | 0.0854 | 517 | 0.0284 |
| 2015 | 2015Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0666 | 0.3716 | 0.4501 | 0.0008 | 0.0298 | 66.8 | 0.0060 |
| 2015 | 2015Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2015 | 2015Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2015 | 2015Trenchers50 | Trenchers | 50 | 0.1390 | 0.3900 | 0.3235 | 0.0004 | 0.0313 | 32.9 | 0.0125 |
| 2015 | 2015Trenchers120 | Trenchers | 120 | 0.1144 | 0.4600 | 0.7060 | 0.0008 | 0.0590 | 64.9 | 0.0103 |
| 2015 | 2015Trenchers175 | Trenchers | 175 | 0.1770 | 0.8534 | 1.3767 | 0.0016 | 0.0748 | 144 | 0.0160 |
| 2015 | 2015Trenchers250 | Trenchers | 250 | 0.2105 | 0.6510 | 1.9456 | 0.0025 | 0.0750 | 223 | 0.0190 |
| 2015 | 2015Trenchers500 | Trenchers | 500 | 0.2694 | 1.1349 | 2.4560 | 0.0031 | 0.0947 | 311 | 0.0243 |
| 2015 | 2015Trenchers750 | Trenchers | 750 | 0.5107 | 2.1334 | 4.7300 | 0.0059 | 0.1802 | 587 | 0.0461 |
| 2015 | 2015Trenchers Composite | Trenchers Composite | | 0.1274 | 0.4541 | 0.6043 | 0.0007 | 0.0485 | 58.7 | 0.0115 |
| 2015 | 2015Welders15 | Welders | 15 | 0.0093 | 0.0400 | 0.0571 | 0.0001 | 0.0034 | 6.2 | 0.0008 |
| 2015 | 2015Welders25 | Welders | 25 | 0.0179 | 0.0532 | 0.0974 | 0.0001 | 0.0054 | 11.3 | 0.0016 |
| 2015 | 2015Welders50 | Welders | 50 | 0.0801 | 0.2564 | 0.2346 | 0.0003 | 0.0200 | 26.0 | 0.0072 |
| 2015 | 2015Welders120 | Welders | 120 | 0.0547 | 0.2606 | 0.3567 | 0.0005 | 0.0296 | 39.5 | 0.0049 |
| 2015 | 2015Welders175 | Welders | 175 | 0.0936 | 0.5424 | 0.7713 | 0.0011 | 0.0405 | 98.2 | 0.0084 |
| 2015 | 2015Welders250 | Welders | 250 | 0.0749 | 0.2483 | 0.8249 | 0.0013 | 0.0248 | 119 | 0.0068 |
| 2015 | 2015Welders500 | Welders | 500 | 0.0968 | 0.3491 | 1.0171 | 0.0016 | 0.0325 | 168 | 0.0087 |
| 2015 | 2015Welders Composite | Welders Composite | | 0.0534 | 0.1994 | 0.2301 | 0.0003 | 0.0187 | 25.6 | 0.0048 |
| 2016 | 2016Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2016 | 2016Aerial Lifts25 | Aerial Lifts | 25 | 0.0150 | 0.0479 | 0.0887 | 0.0001 | 0.0043 | 11.0 | 0.0014 |
| 2016 | 2016Aerial Lifts50 | Aerial Lifts | 50 | 0.0430 | 0.1592 | 0.1637 | 0.0003 | 0.0116 | 19.6 | 0.0039 |
| 2016 | 2016Aerial Lifts120 | Aerial Lifts | 120 | 0.0413 | 0.2355 | 0.3021 | 0.0004 | 0.0219 | 38.1 | 0.0037 |
| 2016 | 2016Aerial Lifts500 | Aerial Lifts | 500 | 0.0951 | 0.4103 | 1.1062 | 0.0021 | 0.0331 | 213 | 0.0086 |
| 2016 | 2016Aerial Lifts750 | Aerial Lifts | 750 | 0.1771 | 0.7417 | 2.0748 | 0.0039 | 0.0611 | 385 | 0.0160 |
| 2016 | 2016Aerial Lifts Composite | Aerial Lifts Composite | | 0.0397 | 0.1800 | 0.2482 | 0.0004 | 0.0150 | 34.7 | 0.0036 |
| 2016 | 2016Air Compressors15 | Air Compressors | 15 | 0.0104 | 0.0461 | 0.0642 | 0.0001 | 0.0037 | 7.2 | 0.0009 |
| 2016 | 2016Air Compressors25 | Air Compressors | 25 | 0.0219 | 0.0665 | 0.1224 | 0.0002 | 0.0066 | 14.4 | 0.0020 |
| 2016 | 2016Air Compressors50 | Air Compressors | 50 | 0.0667 | 0.2281 | 0.1982 | 0.0003 | 0.0165 | 22.3 | 0.0060 |
| 2016 | 2016Air Compressors120 | Air Compressors | 120 | 0.0624 | 0.3150 | 0.3994 | 0.0006 | 0.0333 | 47.0 | 0.0056 |
| 2016 | 2016Air Compressors175 | Air Compressors | 175 | 0.0824 | 0.5006 | 0.6378 | 0.0010 | 0.0346 | 88.5 | 0.0074 |
| 2016 | 2016Air Compressors250 | Air Compressors | 250 | 0.0838 | 0.2741 | 0.8308 | 0.0015 | 0.0257 | 131 | 0.0076 |
| 2016 | 2016Air Compressors500 | Air Compressors | 500 | 0.1387 | 0.4734 | 1.2719 | 0.0023 | 0.0422 | 232 | 0.0125 |
| 2016 | 2016Air Compressors750 | Air Compressors | 750 | 0.2164 | 0.7315 | 2.0431 | 0.0036 | 0.0668 | 358 | 0.0195 |
| 2016 | 2016Air Compressors1000 | Air Compressors | 1000 | 0.3315 | 1.1175 | 4.1882 | 0.0049 | 0.1137 | 486 | 0.0299 |
| 2016 | 2016Air Compressors Composite | Air Compressors Composite | | 0.0704 | 0.3207 | 0.4729 | 0.0007 | 0.0318 | 63.6 | 0.0064 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 2016Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2016 | 2016Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2016 | 2016Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0220 | 0.2223 | 0.2106 | 0.0004 | 0.0058 | 31.0 | 0.0020 |
| 2016 | 2016Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0349 | 0.4671 | 0.3308 | 0.0009 | 0.0125 | 77.1 | 0.0031 |
| 2016 | 2016Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0566 | 0.7540 | 0.4376 | 0.0016 | 0.0156 | 141 | 0.0051 |
| 2016 | 2016Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0628 | 0.3425 | 0.3887 | 0.0021 | 0.0114 | 188 | 0.0057 |
| 2016 | 2016Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.1033 | 0.5511 | 0.6252 | 0.0031 | 0.0186 | 311 | 0.0093 |
| 2016 | 2016Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.2045 | 1.0889 | 1.2440 | 0.0062 | 0.0369 | 615 | 0.0185 |
| 2016 | 2016Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.3273 | 1.6484 | 4.6465 | 0.0093 | 0.1011 | 928 | 0.0295 |
| 2016 | 2016Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0623 | 0.5016 | 0.5340 | 0.0017 | 0.0160 | 165 | 0.0056 |
| 2016 | 2016Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0462 | 0.0001 | 0.0019 | 6.3 | 0.0007 |
| 2016 | 2016Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0243 | 0.0771 | 0.1432 | 0.0002 | 0.0070 | 17.6 | 0.0022 |
| 2016 | 2016Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0088 | 0.0418 | 0.0542 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2016 | 2016Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2016 | 2016Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0703 | 0.2673 | 0.2562 | 0.0004 | 0.0186 | 30.2 | 0.0063 |
| 2016 | 2016Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0809 | 0.4724 | 0.5783 | 0.0009 | 0.0436 | 74.1 | 0.0073 |
| 2016 | 2016Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.1226 | 0.8668 | 1.0454 | 0.0018 | 0.0525 | 160 | 0.0111 |
| 2016 | 2016Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0756 | 0.3936 | 0.4589 | 0.0007 | 0.0336 | 58.5 | 0.0068 |
| 2016 | 2016Cranes50 | Cranes | 50 | 0.0779 | 0.2655 | 0.2159 | 0.0003 | 0.0185 | 23.2 | 0.0070 |
| 2016 | 2016Cranes120 | Cranes | 120 | 0.0744 | 0.3533 | 0.4476 | 0.0006 | 0.0378 | 50.1 | 0.0067 |
| 2016 | 2016Cranes175 | Cranes | 175 | 0.0862 | 0.4783 | 0.6099 | 0.0009 | 0.0346 | 80.3 | 0.0078 |
| 2016 | 2016Cranes250 | Cranes | 250 | 0.0875 | 0.2634 | 0.7534 | 0.0013 | 0.0259 | 112 | 0.0079 |
| 2016 | 2016Cranes500 | Cranes | 500 | 0.1325 | 0.4431 | 1.0723 | 0.0018 | 0.0387 | 180 | 0.0120 |
| 2016 | 2016Cranes750 | Cranes | 750 | 0.2244 | 0.7448 | 1.8635 | 0.0030 | 0.0663 | 303 | 0.0202 |
| 2016 | 2016Cranes9999 | Cranes | 9999 | 0.8246 | 2.7017 | 8.7644 | 0.0098 | 0.2555 | 971 | 0.0744 |
| 2016 | 2016Cranes Composite | Cranes Composite | | 0.1137 | 0.4263 | 0.9387 | 0.0014 | 0.0388 | 129 | 0.0103 |
| 2016 | 2016Crawler Tractors50 | Crawler Tractors | 50 | 0.0944 | 0.3015 | 0.2386 | 0.0003 | 0.0215 | 24.9 | 0.0085 |
| 2016 | 2016Crawler Tractors120 | Crawler Tractors | 120 | 0.1073 | 0.4739 | 0.6379 | 0.0008 | 0.0533 | 65.8 | 0.0097 |
| 2016 | 2016Crawler Tractors175 | Crawler Tractors | 175 | 0.1427 | 0.7361 | 1.0097 | 0.0014 | 0.0567 | 121 | 0.0129 |
| 2016 | 2016Crawler Tractors250 | Crawler Tractors | 250 | 0.1496 | 0.4452 | 1.2431 | 0.0019 | 0.0468 | 166 | 0.0135 |
| 2016 | 2016Crawler Tractors500 | Crawler Tractors | 500 | 0.2183 | 0.7903 | 1.7438 | 0.0025 | 0.0669 | 259 | 0.0197 |
| 2016 | 2016Crawler Tractors750 | Crawler Tractors | 750 | 0.3930 | 1.4137 | 3.2045 | 0.0047 | 0.1213 | 465 | 0.0355 |
| 2016 | 2016Crawler Tractors1000 | Crawler Tractors | 1000 | 0.5970 | 2.2313 | 6.3308 | 0.0066 | 0.1930 | 658 | 0.0539 |
| 2016 | 2016Crawler Tractors Composite | Crawler Tractors Composite | | 0.1335 | 0.5549 | 0.9315 | 0.0013 | 0.0546 | 114 | 0.0120 |
| 2016 | 2016Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.1234 | 0.4493 | 0.3877 | 0.0006 | 0.0310 | 44.0 | 0.0111 |
| 2016 | 2016Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.1054 | 0.5594 | 0.6775 | 0.0010 | 0.0555 | 83.1 | 0.0095 |
| 2016 | 2016Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1513 | 0.9539 | 1.1428 | 0.0019 | 0.0620 | 167 | 0.0136 |
| 2016 | 2016Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1553 | 0.5071 | 1.4547 | 0.0028 | 0.0453 | 245 | 0.0140 |
| 2016 | 2016Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.2240 | 0.7541 | 1.9256 | 0.0037 | 0.0648 | 374 | 0.0202 |
| 2016 | 2016Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3524 | 1.1817 | 3.1408 | 0.0059 | 0.1031 | 589 | 0.0318 |
| 2016 | 2016Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.9152 | 2.9318 | 10.8280 | 0.0131 | 0.2940 | 1,308 | 0.0826 |
| 2016 | 2016Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1337 | 0.6461 | 0.8965 | 0.0015 | 0.0538 | 132 | 0.0121 |
| 2016 | 2016Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0093 | 0.0314 | 0.0587 | 0.0001 | 0.0024 | 7.6 | 0.0008 |
| 2016 | 2016Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0093 | 0.0314 | 0.0587 | 0.0001 | 0.0024 | 7.6 | 0.0008 |
| 2016 | 2016Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2016 | 2016Excavators50 | Excavators | 50 | 0.0581 | 0.2621 | 0.2166 | 0.0003 | 0.0147 | 25.0 | 0.0052 |
| 2016 | 2016Excavators120 | Excavators | 120 | 0.0833 | 0.5070 | 0.5292 | 0.0009 | 0.0395 | 73.6 | 0.0075 |
| 2016 | 2016Excavators175 | Excavators | 175 | 0.0972 | 0.6648 | 0.6563 | 0.0013 | 0.0355 | 112 | 0.0088 |
| 2016 | 2016Excavators250 | Excavators | 250 | 0.1054 | 0.3389 | 0.7862 | 0.0018 | 0.0263 | 159 | 0.0095 |
| 2016 | 2016Excavators500 | Excavators | 500 | 0.1496 | 0.4851 | 1.0236 | 0.0023 | 0.0366 | 234 | 0.0135 |
| 2016 | 2016Excavators750 | Excavators | 750 | 0.2493 | 0.8037 | 1.7546 | 0.0039 | 0.0618 | 387 | 0.0225 |
| 2016 | 2016Excavators Composite | Excavators Composite | | 0.0988 | 0.5213 | 0.6603 | 0.0013 | 0.0332 | 120 | 0.0089 |
| 2016 | 2016Forklifts50 | Forklifts | 50 | 0.0284 | 0.1489 | 0.1276 | 0.0002 | 0.0080 | 14.7 | 0.0026 |
| 2016 | 2016Forklifts120 | Forklifts | 120 | 0.0313 | 0.2133 | 0.2116 | 0.0004 | 0.0149 | 31.2 | 0.0028 |
| 2016 | 2016Forklifts175 | Forklifts | 175 | 0.0454 | 0.3320 | 0.3050 | 0.0006 | 0.0167 | 56.1 | 0.0041 |
| 2016 | 2016Forklifts250 | Forklifts | 250 | 0.0493 | 0.1572 | 0.3531 | 0.0009 | 0.0118 | 77.1 | 0.0044 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 2016Forklifts500 | Forklifts | 500 | 0.0693 | 0.2150 | 0.4532 | 0.0011 | 0.0165 | 111 | 0.0062 |
| 2016 | 2016Forklifts Composite | Forklifts Composite | | 0.0427 | 0.2190 | 0.2816 | 0.0006 | 0.0137 | 54.4 | 0.0039 |
| 2016 | 2016Generator Sets15 | Generator Sets | 15 | 0.0130 | 0.0652 | 0.0899 | 0.0002 | 0.0048 | 10.2 | 0.0012 |
| 2016 | 2016Generator Sets25 | Generator Sets | 25 | 0.0241 | 0.0811 | 0.1494 | 0.0002 | 0.0076 | 17.6 | 0.0022 |
| 2016 | 2016Generator Sets50 | Generator Sets | 50 | 0.0630 | 0.2393 | 0.2532 | 0.0004 | 0.0174 | 30.6 | 0.0057 |
| 2016 | 2016Generator Sets120 | Generator Sets | 120 | 0.0814 | 0.4767 | 0.6102 | 0.0009 | 0.0431 | 77.9 | 0.0073 |
| 2016 | 2016Generator Sets175 | Generator Sets | 175 | 0.1006 | 0.7336 | 0.9416 | 0.0016 | 0.0432 | 142 | 0.0091 |
| 2016 | 2016Generator Sets250 | Generator Sets | 250 | 0.1003 | 0.4059 | 1.2339 | 0.0024 | 0.0342 | 213 | 0.0091 |
| 2016 | 2016Generator Sets500 | Generator Sets | 500 | 0.1437 | 0.6411 | 1.7299 | 0.0033 | 0.0509 | 337 | 0.0130 |
| 2016 | 2016Generator Sets750 | Generator Sets | 750 | 0.2399 | 1.0349 | 2.8965 | 0.0055 | 0.0840 | 544 | 0.0216 |
| 2016 | 2016Generator Sets9999 | Generator Sets | 9999 | 0.6052 | 2.2398 | 8.4480 | 0.0105 | 0.2114 | 1,049 | 0.0546 |
| 2016 | 2016Generator Sets Composite | Generator Sets Composite | | 0.0581 | 0.2862 | 0.4370 | 0.0007 | 0.0241 | 61.0 | 0.0052 |
| 2016 | 2016Graders50 | Graders | 50 | 0.0816 | 0.3003 | 0.2476 | 0.0004 | 0.0196 | 27.5 | 0.0074 |
| 2016 | 2016Graders120 | Graders | 120 | 0.1002 | 0.5196 | 0.6220 | 0.0009 | 0.0499 | 75.0 | 0.0090 |
| 2016 | 2016Graders175 | Graders | 175 | 0.1215 | 0.7310 | 0.8624 | 0.0014 | 0.0476 | 124 | 0.0110 |
| 2016 | 2016Graders250 | Graders | 250 | 0.1250 | 0.3936 | 1.0444 | 0.0019 | 0.0359 | 172 | 0.0113 |
| 2016 | 2016Graders500 | Graders | 500 | 0.1579 | 0.5525 | 1.2394 | 0.0023 | 0.0446 | 229 | 0.0142 |
| 2016 | 2016Graders750 | Graders | 750 | 0.3362 | 1.1682 | 2.7050 | 0.0049 | 0.0960 | 486 | 0.0303 |
| 2016 | 2016Graders Composite | Graders Composite | | 0.1197 | 0.5883 | 0.8866 | 0.0015 | 0.0441 | 133 | 0.0108 |
| 2016 | 2016Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1806 | 0.6988 | 1.0550 | 0.0011 | 0.0892 | 93.7 | 0.0163 |
| 2016 | 2016Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1782 | 0.8166 | 1.2825 | 0.0015 | 0.0723 | 130 | 0.0161 |
| 2016 | 2016Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1415 | 0.4155 | 1.1803 | 0.0015 | 0.0482 | 130 | 0.0128 |
| 2016 | 2016Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.5701 | 2.3586 | 4.7515 | 0.0057 | 0.1903 | 568 | 0.0514 |
| 2016 | 2016Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.8608 | 3.6939 | 8.8128 | 0.0082 | 0.2875 | 814 | 0.0777 |
| 2016 | 2016Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1803 | 0.7067 | 1.4108 | 0.0017 | 0.0670 | 151 | 0.0163 |
| 2016 | 2016Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.1164 | 0.7552 | 0.7647 | 0.0014 | 0.0417 | 125 | 0.0105 |
| 2016 | 2016Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.1179 | 0.3651 | 0.8678 | 0.0019 | 0.0290 | 167 | 0.0106 |
| 2016 | 2016Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1855 | 0.5796 | 1.2524 | 0.0027 | 0.0448 | 272 | 0.0167 |
| 2016 | 2016Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.3026 | 0.9397 | 2.1025 | 0.0044 | 0.0741 | 442 | 0.0273 |
| 2016 | 2016Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.4576 | 1.4117 | 4.8929 | 0.0063 | 0.1360 | 625 | 0.0413 |
| 2016 | 2016Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1816 | 0.5831 | 1.3322 | 0.0027 | 0.0459 | 260 | 0.0164 |
| 2016 | 2016Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2016 | 2016Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2016 | 2016Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0530 | 0.2447 | 0.2274 | 0.0004 | 0.0143 | 28.0 | 0.0048 |
| 2016 | 2016Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0747 | 0.5170 | 0.5495 | 0.0009 | 0.0384 | 80.9 | 0.0067 |
| 2016 | 2016Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0729 | 0.5862 | 0.5856 | 0.0012 | 0.0291 | 107 | 0.0066 |
| 2016 | 2016Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1243 | 0.4868 | 1.0415 | 0.0025 | 0.0350 | 254 | 0.0112 |
| 2016 | 2016Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0720 | 0.3602 | 0.5680 | 0.0013 | 0.0234 | 123 | 0.0065 |
| 2016 | 2016Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2016 | 2016Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2016 | 2016Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0700 | 0.2449 | 0.2003 | 0.0003 | 0.0171 | 21.7 | 0.0063 |
| 2016 | 2016Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0895 | 0.4343 | 0.5394 | 0.0007 | 0.0461 | 62.0 | 0.0081 |
| 2016 | 2016Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0993 | 0.5671 | 0.7059 | 0.0011 | 0.0398 | 95.9 | 0.0090 |
| 2016 | 2016Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0990 | 0.2950 | 0.8757 | 0.0015 | 0.0279 | 136 | 0.0089 |
| 2016 | 2016Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1832 | 0.5599 | 1.4849 | 0.0026 | 0.0511 | 265 | 0.0165 |
| 2016 | 2016Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.3043 | 0.9228 | 2.5436 | 0.0044 | 0.0861 | 437 | 0.0275 |
| 2016 | 2016Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.4283 | 1.3244 | 4.9259 | 0.0056 | 0.1385 | 560 | 0.0386 |
| 2016 | 2016Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1267 | 0.4731 | 1.0122 | 0.0016 | 0.0425 | 152 | 0.0114 |
| 2016 | 2016Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0970 | 0.3384 | 0.2785 | 0.0004 | 0.0237 | 30.3 | 0.0088 |
| 2016 | 2016Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0869 | 0.4228 | 0.5267 | 0.0007 | 0.0450 | 60.7 | 0.0078 |
| 2016 | 2016Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.1251 | 0.7182 | 0.8969 | 0.0014 | 0.0504 | 122 | 0.0113 |
| 2016 | 2016Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.1046 | 0.3141 | 0.9355 | 0.0016 | 0.0298 | 145 | 0.0094 |
| 2016 | 2016Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1305 | 0.4029 | 1.0706 | 0.0019 | 0.0367 | 192 | 0.0118 |
| 2016 | 2016Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.5874 | 1.7492 | 6.5148 | 0.0073 | 0.1827 | 741 | 0.0530 |
| 2016 | 2016Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.1202 | 0.4608 | 0.9913 | 0.0015 | 0.0411 | 141 | 0.0108 |
| 2016 | 2016Pavers25 | Pavers | 25 | 0.0230 | 0.0774 | 0.1448 | 0.0002 | 0.0061 | 18.7 | 0.0021 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 2016Pavers50 | Pavers | 50 | 0.1117 | 0.3339 | 0.2694 | 0.0004 | 0.0252 | 28.0 | 0.0101 |
| 2016 | 2016Pavers120 | Pavers | 120 | 0.1164 | 0.4930 | 0.7030 | 0.0008 | 0.0591 | 69.2 | 0.0105 |
| 2016 | 2016Pavers175 | Pavers | 175 | 0.1524 | 0.7678 | 1.1274 | 0.0014 | 0.0627 | 128 | 0.0138 |
| 2016 | 2016Pavers250 | Pavers | 250 | 0.1758 | 0.5369 | 1.5485 | 0.0022 | 0.0587 | 194 | 0.0159 |
| 2016 | 2016Pavers500 | Pavers | 500 | 0.1956 | 0.7646 | 1.6718 | 0.0023 | 0.0641 | 233 | 0.0177 |
| 2016 | 2016Pavers Composite | Pavers Composite | | 0.1269 | 0.5135 | 0.7128 | 0.0009 | 0.0489 | 77.9 | 0.0114 |
| 2016 | 2016Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2016 | 2016Paving Equipment50 | Paving Equipment | 50 | 0.0953 | 0.2829 | 0.2297 | 0.0003 | 0.0216 | 23.9 | 0.0086 |
| 2016 | 2016Paving Equipment120 | Paving Equipment | 120 | 0.0912 | 0.3862 | 0.5522 | 0.0006 | 0.0468 | 54.5 | 0.0082 |
| 2016 | 2016Paving Equipment175 | Paving Equipment | 175 | 0.1188 | 0.6004 | 0.8857 | 0.0011 | 0.0492 | 101 | 0.0107 |
| 2016 | 2016Paving Equipment250 | Paving Equipment | 250 | 0.1077 | 0.3302 | 0.9703 | 0.0014 | 0.0360 | 122 | 0.0097 |
| 2016 | 2016Paving Equipment Composite | Paving Equipment Composite | | 0.0965 | 0.4198 | 0.6393 | 0.0008 | 0.0436 | 68.9 | 0.0087 |
| 2016 | 2016Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2016 | 2016Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2016 | 2016Pressure Washers15 | Pressure Washers | 15 | 0.0062 | 0.0312 | 0.0431 | 0.0001 | 0.0023 | 4.9 | 0.0006 |
| 2016 | 2016Pressure Washers25 | Pressure Washers | 25 | 0.0098 | 0.0329 | 0.0606 | 0.0001 | 0.0031 | 7.1 | 0.0009 |
| 2016 | 2016Pressure Washers50 | Pressure Washers | 50 | 0.0222 | 0.0943 | 0.1139 | 0.0002 | 0.0069 | 14.3 | 0.0020 |
| 2016 | 2016Pressure Washers120 | Pressure Washers | 120 | 0.0217 | 0.1404 | 0.1798 | 0.0003 | 0.0114 | 24.1 | 0.0020 |
| 2016 | 2016Pressure Washers Composite | Pressure Washers Composite | | 0.0121 | 0.0579 | 0.0764 | 0.0001 | 0.0044 | 9.4 | 0.0011 |
| 2016 | 2016Pumps15 | Pumps | 15 | 0.0106 | 0.0474 | 0.0660 | 0.0001 | 0.0038 | 7.4 | 0.0010 |
| 2016 | 2016Pumps25 | Pumps | 25 | 0.0296 | 0.0897 | 0.1651 | 0.0002 | 0.0088 | 19.5 | 0.0027 |
| 2016 | 2016Pumps50 | Pumps | 50 | 0.0765 | 0.2823 | 0.2874 | 0.0004 | 0.0206 | 34.3 | 0.0069 |
| 2016 | 2016Pumps120 | Pumps | 120 | 0.0851 | 0.4842 | 0.6196 | 0.0009 | 0.0453 | 77.9 | 0.0077 |
| 2016 | 2016Pumps175 | Pumps | 175 | 0.1044 | 0.7350 | 0.9440 | 0.0016 | 0.0448 | 140 | 0.0094 |
| 2016 | 2016Pumps250 | Pumps | 250 | 0.1005 | 0.3911 | 1.1887 | 0.0023 | 0.0338 | 201 | 0.0091 |
| 2016 | 2016Pumps500 | Pumps | 500 | 0.1566 | 0.6672 | 1.7955 | 0.0034 | 0.0542 | 345 | 0.0141 |
| 2016 | 2016Pumps750 | Pumps | 750 | 0.2663 | 1.1031 | 3.0795 | 0.0057 | 0.0916 | 571 | 0.0240 |
| 2016 | 2016Pumps9999 | Pumps | 9999 | 0.8096 | 2.9411 | 11.0444 | 0.0136 | 0.2798 | 1,355 | 0.0730 |
| 2016 | 2016Pumps Composite | Pumps Composite | | 0.0562 | 0.2785 | 0.3830 | 0.0006 | 0.0239 | 49.6 | 0.0051 |
| 2016 | 2016Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2016 | 2016Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0039 | 13.3 | 0.0015 |
| 2016 | 2016Rollers50 | Rollers | 50 | 0.0798 | 0.2680 | 0.2323 | 0.0003 | 0.0191 | 26.0 | 0.0072 |
| 2016 | 2016Rollers120 | Rollers | 120 | 0.0795 | 0.3971 | 0.5112 | 0.0007 | 0.0416 | 59.0 | 0.0072 |
| 2016 | 2016Rollers175 | Rollers | 175 | 0.1033 | 0.6152 | 0.7968 | 0.0012 | 0.0431 | 108 | 0.0093 |
| 2016 | 2016Rollers250 | Rollers | 250 | 0.1042 | 0.3463 | 0.9961 | 0.0017 | 0.0333 | 153 | 0.0094 |
| 2016 | 2016Rollers500 | Rollers | 500 | 0.1391 | 0.5319 | 1.2666 | 0.0022 | 0.0442 | 219 | 0.0126 |
| 2016 | 2016Rollers Composite | Rollers Composite | | 0.0792 | 0.3944 | 0.5273 | 0.0008 | 0.0353 | 67.0 | 0.0071 |
| 2016 | 2016Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0840 | 0.3459 | 0.2954 | 0.0004 | 0.0216 | 33.9 | 0.0076 |
| 2016 | 2016Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0729 | 0.4231 | 0.4742 | 0.0007 | 0.0369 | 62.4 | 0.0066 |
| 2016 | 2016Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.1081 | 0.7236 | 0.7797 | 0.0014 | 0.0423 | 125 | 0.0098 |
| 2016 | 2016Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.1107 | 0.3592 | 0.9207 | 0.0019 | 0.0302 | 171 | 0.0100 |
| 2016 | 2016Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1590 | 0.5205 | 1.2089 | 0.0025 | 0.0428 | 257 | 0.0143 |
| 2016 | 2016Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0775 | 0.4549 | 0.5104 | 0.0008 | 0.0372 | 70.3 | 0.0070 |
| 2016 | 2016Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1852 | 0.8280 | 1.3073 | 0.0015 | 0.0740 | 129 | 0.0167 |
| 2016 | 2016Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.2099 | 0.6066 | 1.7084 | 0.0021 | 0.0707 | 183 | 0.0189 |
| 2016 | 2016Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2794 | 1.1678 | 2.2384 | 0.0026 | 0.0915 | 265 | 0.0252 |
| 2016 | 2016Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.4216 | 1.7523 | 3.4334 | 0.0040 | 0.1388 | 399 | 0.0380 |
| 2016 | 2016Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.6575 | 2.8291 | 6.5404 | 0.0060 | 0.2169 | 592 | 0.0593 |
| 2016 | 2016Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2591 | 0.9834 | 2.0891 | 0.0025 | 0.0858 | 239 | 0.0234 |
| 2016 | 2016Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2016 | 2016Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0901 | 0.3349 | 0.2783 | 0.0004 | 0.0218 | 31.1 | 0.0081 |
| 2016 | 2016Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0773 | 0.4063 | 0.4828 | 0.0007 | 0.0387 | 58.9 | 0.0070 |
| 2016 | 2016Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.1022 | 0.6242 | 0.7295 | 0.0012 | 0.0402 | 106 | 0.0092 |
| 2016 | 2016Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.1056 | 0.3357 | 0.8897 | 0.0017 | 0.0302 | 149 | 0.0095 |
| 2016 | 2016Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1592 | 0.5594 | 1.2576 | 0.0023 | 0.0449 | 237 | 0.0144 |
| 2016 | 2016Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.3283 | 1.1450 | 2.6587 | 0.0049 | 0.0937 | 486 | 0.0296 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 2016Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.4397 | 1.5570 | 4.9948 | 0.0060 | 0.1424 | 594 | 0.0397 |
| 2016 | 2016Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0983 | 0.4557 | 0.7114 | 0.0012 | 0.0375 | 109 | 0.0089 |
| 2016 | 2016Scrapers120 | Scrapers | 120 | 0.1566 | 0.6775 | 0.9295 | 0.0011 | 0.0781 | 93.9 | 0.0141 |
| 2016 | 2016Scrapers175 | Scrapers | 175 | 0.1771 | 0.9000 | 1.2619 | 0.0017 | 0.0709 | 148 | 0.0160 |
| 2016 | 2016Scrapers250 | Scrapers | 250 | 0.1911 | 0.5689 | 1.6086 | 0.0024 | 0.0607 | 209 | 0.0172 |
| 2016 | 2016Scrapers500 | Scrapers | 500 | 0.2736 | 1.0107 | 2.2183 | 0.0032 | 0.0851 | 321 | 0.0247 |
| 2016 | 2016Scrapers750 | Scrapers | 750 | 0.4747 | 1.7423 | 3.9270 | 0.0056 | 0.1488 | 555 | 0.0428 |
| 2016 | 2016Scrapers Composite | Scrapers Composite | | 0.2383 | 0.9053 | 1.9017 | 0.0027 | 0.0783 | 262 | 0.0215 |
| 2016 | 2016Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2016 | 2016Signal Boards50 | Signal Boards | 50 | 0.0832 | 0.3134 | 0.3032 | 0.0005 | 0.0219 | 36.2 | 0.0075 |
| 2016 | 2016Signal Boards120 | Signal Boards | 120 | 0.0873 | 0.5072 | 0.6231 | 0.0009 | 0.0466 | 80.2 | 0.0079 |
| 2016 | 2016Signal Boards175 | Signal Boards | 175 | 0.1169 | 0.8288 | 1.0085 | 0.0017 | 0.0498 | 155 | 0.0106 |
| 2016 | 2016Signal Boards250 | Signal Boards | 250 | 0.1318 | 0.4998 | 1.4477 | 0.0029 | 0.0424 | 255 | 0.0119 |
| 2016 | 2016Signal Boards Composite | Signal Boards Composite | | 0.0161 | 0.0921 | 0.1172 | 0.0002 | 0.0060 | 16.7 | 0.0014 |
| 2016 | 2016Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0184 | 0.0594 | 0.1107 | 0.0002 | 0.0053 | 13.8 | 0.0017 |
| 2016 | 2016Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0323 | 0.2089 | 0.1953 | 0.0003 | 0.0094 | 25.5 | 0.0029 |
| 2016 | 2016Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0295 | 0.2695 | 0.2411 | 0.0005 | 0.0138 | 42.8 | 0.0027 |
| 2016 | 2016Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0305 | 0.2184 | 0.2044 | 0.0004 | 0.0106 | 30.3 | 0.0028 |
| 2016 | 2016Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0376 | 0.1300 | 0.1219 | 0.0002 | 0.0093 | 14.1 | 0.0034 |
| 2016 | 2016Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0779 | 0.4123 | 0.5363 | 0.0007 | 0.0403 | 63.8 | 0.0070 |
| 2016 | 2016Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0734 | 0.4695 | 0.6130 | 0.0010 | 0.0308 | 85.8 | 0.0066 |
| 2016 | 2016Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0833 | 0.3013 | 0.8507 | 0.0015 | 0.0280 | 135 | 0.0075 |
| 2016 | 2016Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1260 | 0.5485 | 1.2555 | 0.0022 | 0.0425 | 221 | 0.0114 |
| 2016 | 2016Surfacing Equipment750 | Surfacing Equipment | 750 | 0.2006 | 0.8594 | 2.0266 | 0.0035 | 0.0677 | 347 | 0.0181 |
| 2016 | 2016Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.1045 | 0.4506 | 0.9731 | 0.0017 | 0.0353 | 166 | 0.0094 |
| 2016 | 2016Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2016 | 2016Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2016 | 2016Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0662 | 0.3084 | 0.2720 | 0.0004 | 0.0182 | 31.6 | 0.0060 |
| 2016 | 2016Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0774 | 0.5017 | 0.5324 | 0.0009 | 0.0392 | 75.0 | 0.0070 |
| 2016 | 2016Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.1100 | 0.8005 | 0.7999 | 0.0016 | 0.0429 | 139 | 0.0099 |
| 2016 | 2016Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0979 | 0.3255 | 0.7954 | 0.0018 | 0.0258 | 162 | 0.0088 |
| 2016 | 2016Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0810 | 0.4988 | 0.5192 | 0.0009 | 0.0332 | 78.5 | 0.0073 |
| 2016 | 2016Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0192 | 0.0653 | 0.1216 | 0.0002 | 0.0048 | 15.9 | 0.0017 |
| 2016 | 2016Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0623 | 0.2949 | 0.2536 | 0.0004 | 0.0162 | 30.3 | 0.0056 |
| 2016 | 2016Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0524 | 0.3460 | 0.3526 | 0.0006 | 0.0253 | 51.7 | 0.0047 |
| 2016 | 2016Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0788 | 0.5850 | 0.5574 | 0.0011 | 0.0293 | 101 | 0.0071 |
| 2016 | 2016Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.1025 | 0.3534 | 0.7914 | 0.0019 | 0.0260 | 172 | 0.0092 |
| 2016 | 2016Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1985 | 0.6964 | 1.4092 | 0.0039 | 0.0496 | 345 | 0.0179 |
| 2016 | 2016Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2995 | 1.0443 | 2.1837 | 0.0058 | 0.0758 | 517 | 0.0270 |
| 2016 | 2016Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0610 | 0.3689 | 0.4070 | 0.0008 | 0.0258 | 66.8 | 0.0055 |
| 2016 | 2016Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2016 | 2016Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2016 | 2016Trenchers50 | Trenchers | 50 | 0.1305 | 0.3813 | 0.3141 | 0.0004 | 0.0293 | 32.9 | 0.0118 |
| 2016 | 2016Trenchers120 | Trenchers | 120 | 0.1080 | 0.4563 | 0.6653 | 0.0008 | 0.0551 | 64.9 | 0.0097 |
| 2016 | 2016Trenchers175 | Trenchers | 175 | 0.1678 | 0.8496 | 1.2809 | 0.0016 | 0.0700 | 144 | 0.0151 |
| 2016 | 2016Trenchers250 | Trenchers | 250 | 0.1991 | 0.6260 | 1.8052 | 0.0025 | 0.0691 | 223 | 0.0180 |
| 2016 | 2016Trenchers500 | Trenchers | 500 | 0.2560 | 1.0680 | 2.2757 | 0.0031 | 0.0874 | 311 | 0.0231 |
| 2016 | 2016Trenchers750 | Trenchers | 750 | 0.4852 | 2.0082 | 4.3873 | 0.0059 | 0.1665 | 587 | 0.0438 |
| 2016 | 2016Trenchers Composite | Trenchers Composite | | 0.1200 | 0.4479 | 0.5719 | 0.0007 | 0.0453 | 58.7 | 0.0108 |
| 2016 | 2016Welders15 | Welders | 15 | 0.0089 | 0.0396 | 0.0551 | 0.0001 | 0.0032 | 6.2 | 0.0008 |
| 2016 | 2016Welders25 | Welders | 25 | 0.0171 | 0.0519 | 0.0956 | 0.0001 | 0.0051 | 11.3 | 0.0015 |
| 2016 | 2016Welders50 | Welders | 50 | 0.0717 | 0.2483 | 0.2262 | 0.0003 | 0.0181 | 26.0 | 0.0065 |
| 2016 | 2016Welders120 | Welders | 120 | 0.0494 | 0.2581 | 0.3291 | 0.0005 | 0.0265 | 39.5 | 0.0045 |
| 2016 | 2016Welders175 | Welders | 175 | 0.0852 | 0.5411 | 0.6939 | 0.0011 | 0.0362 | 98.2 | 0.0077 |
| 2016 | 2016Welders250 | Welders | 250 | 0.0700 | 0.2427 | 0.7386 | 0.0013 | 0.0223 | 119 | 0.0063 |
| 2016 | 2016Welders500 | Welders | 500 | 0.0912 | 0.3361 | 0.9056 | 0.0016 | 0.0292 | 168 | 0.0082 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 2016Welders Composite | Welders Composite | | 0.0482 | 0.1951 | 0.2173 | 0.0003 | 0.0168 | 25.6 | 0.0044 |
| 2017 | 2017Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2017 | 2017Aerial Lifts25 | Aerial Lifts | 25 | 0.0146 | 0.0473 | 0.0873 | 0.0001 | 0.0041 | 11.0 | 0.0013 |
| 2017 | 2017Aerial Lifts50 | Aerial Lifts | 50 | 0.0382 | 0.1548 | 0.1580 | 0.0003 | 0.0104 | 19.6 | 0.0034 |
| 2017 | 2017Aerial Lifts120 | Aerial Lifts | 120 | 0.0368 | 0.2336 | 0.2787 | 0.0004 | 0.0194 | 38.1 | 0.0033 |
| 2017 | 2017Aerial Lifts500 | Aerial Lifts | 500 | 0.0890 | 0.3983 | 0.9891 | 0.0021 | 0.0299 | 213 | 0.0080 |
| 2017 | 2017Aerial Lifts750 | Aerial Lifts | 750 | 0.1647 | 0.7200 | 1.8445 | 0.0039 | 0.0549 | 385 | 0.0149 |
| 2017 | 2017Aerial Lifts Composite | Aerial Lifts Composite | | 0.0358 | 0.1768 | 0.2310 | 0.0004 | 0.0134 | 34.7 | 0.0032 |
| 2017 | 2017Air Compressors15 | Air Compressors | 15 | 0.0101 | 0.0458 | 0.0624 | 0.0001 | 0.0035 | 7.2 | 0.0009 |
| 2017 | 2017Air Compressors25 | Air Compressors | 25 | 0.0212 | 0.0654 | 0.1205 | 0.0002 | 0.0062 | 14.4 | 0.0019 |
| 2017 | 2017Air Compressors50 | Air Compressors | 50 | 0.0591 | 0.2209 | 0.1914 | 0.0003 | 0.0148 | 22.3 | 0.0053 |
| 2017 | 2017Air Compressors120 | Air Compressors | 120 | 0.0562 | 0.3122 | 0.3674 | 0.0006 | 0.0294 | 47.0 | 0.0051 |
| 2017 | 2017Air Compressors175 | Air Compressors | 175 | 0.0752 | 0.4998 | 0.5700 | 0.0010 | 0.0306 | 88.5 | 0.0068 |
| 2017 | 2017Air Compressors250 | Air Compressors | 250 | 0.0791 | 0.2692 | 0.7388 | 0.0015 | 0.0230 | 131 | 0.0071 |
| 2017 | 2017Air Compressors500 | Air Compressors | 500 | 0.1321 | 0.4598 | 1.1363 | 0.0023 | 0.0381 | 232 | 0.0119 |
| 2017 | 2017Air Compressors750 | Air Compressors | 750 | 0.2057 | 0.7106 | 1.8141 | 0.0036 | 0.0600 | 358 | 0.0186 |
| 2017 | 2017Air Compressors1000 | Air Compressors | 1000 | 0.3127 | 1.0739 | 3.9506 | 0.0049 | 0.1048 | 486 | 0.0282 |
| 2017 | 2017Air Compressors Composite | Air Compressors Composite | | 0.0641 | 0.3165 | 0.4318 | 0.0007 | 0.0282 | 63.6 | 0.0058 |
| 2017 | 2017Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2017 | 2017Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2017 | 2017Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0210 | 0.2215 | 0.1992 | 0.0004 | 0.0044 | 31.0 | 0.0019 |
| 2017 | 2017Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0326 | 0.4667 | 0.2962 | 0.0009 | 0.0095 | 77.1 | 0.0029 |
| 2017 | 2017Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0519 | 0.7541 | 0.3589 | 0.0016 | 0.0121 | 141 | 0.0047 |
| 2017 | 2017Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0580 | 0.3426 | 0.3124 | 0.0021 | 0.0088 | 188 | 0.0052 |
| 2017 | 2017Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0955 | 0.5511 | 0.5035 | 0.0031 | 0.0145 | 311 | 0.0086 |
| 2017 | 2017Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1891 | 1.0890 | 1.0018 | 0.0062 | 0.0287 | 615 | 0.0171 |
| 2017 | 2017Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.3016 | 1.6457 | 4.3972 | 0.0093 | 0.0855 | 928 | 0.0272 |
| 2017 | 2017Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0578 | 0.5013 | 0.4692 | 0.0017 | 0.0126 | 165 | 0.0052 |
| 2017 | 2017Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2017 | 2017Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0237 | 0.0762 | 0.1411 | 0.0002 | 0.0067 | 17.6 | 0.0021 |
| 2017 | 2017Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0087 | 0.0417 | 0.0539 | 0.0001 | 0.0022 | 7.2 | 0.0008 |
| 2017 | 2017Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2017 | 2017Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0625 | 0.2602 | 0.2473 | 0.0004 | 0.0167 | 30.2 | 0.0056 |
| 2017 | 2017Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0728 | 0.4691 | 0.5331 | 0.0009 | 0.0385 | 74.1 | 0.0066 |
| 2017 | 2017Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.1116 | 0.8663 | 0.9349 | 0.0018 | 0.0466 | 160 | 0.0101 |
| 2017 | 2017Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0679 | 0.3892 | 0.4267 | 0.0007 | 0.0298 | 58.5 | 0.0061 |
| 2017 | 2017Cranes50 | Cranes | 50 | 0.0709 | 0.2588 | 0.2087 | 0.0003 | 0.0168 | 23.2 | 0.0064 |
| 2017 | 2017Cranes120 | Cranes | 120 | 0.0690 | 0.3509 | 0.4155 | 0.0006 | 0.0341 | 50.1 | 0.0062 |
| 2017 | 2017Cranes175 | Cranes | 175 | 0.0807 | 0.4774 | 0.5549 | 0.0009 | 0.0314 | 80.3 | 0.0073 |
| 2017 | 2017Cranes250 | Cranes | 250 | 0.0830 | 0.2572 | 0.6832 | 0.0013 | 0.0235 | 112 | 0.0075 |
| 2017 | 2017Cranes500 | Cranes | 500 | 0.1262 | 0.4243 | 0.9704 | 0.0018 | 0.0351 | 180 | 0.0114 |
| 2017 | 2017Cranes750 | Cranes | 750 | 0.2137 | 0.7132 | 1.6890 | 0.0030 | 0.0602 | 303 | 0.0193 |
| 2017 | 2017Cranes9999 | Cranes | 9999 | 0.7823 | 2.5343 | 8.2827 | 0.0098 | 0.2344 | 971 | 0.0706 |
| 2017 | 2017Cranes Composite | Cranes Composite | | 0.1073 | 0.4152 | 0.8625 | 0.0014 | 0.0352 | 129 | 0.0097 |
| 2017 | 2017Crawler Tractors50 | Crawler Tractors | 50 | 0.0876 | 0.2947 | 0.2312 | 0.0003 | 0.0197 | 24.9 | 0.0079 |
| 2017 | 2017Crawler Tractors120 | Crawler Tractors | 120 | 0.1008 | 0.4707 | 0.5971 | 0.0008 | 0.0489 | 65.8 | 0.0091 |
| 2017 | 2017Crawler Tractors175 | Crawler Tractors | 175 | 0.1347 | 0.7342 | 0.9293 | 0.0014 | 0.0522 | 121 | 0.0122 |
| 2017 | 2017Crawler Tractors250 | Crawler Tractors | 250 | 0.1413 | 0.4308 | 1.1399 | 0.0019 | 0.0426 | 166 | 0.0127 |
| 2017 | 2017Crawler Tractors500 | Crawler Tractors | 500 | 0.2069 | 0.7531 | 1.5987 | 0.0025 | 0.0609 | 259 | 0.0187 |
| 2017 | 2017Crawler Tractors750 | Crawler Tractors | 750 | 0.3726 | 1.3475 | 2.9402 | 0.0047 | 0.1106 | 465 | 0.0336 |
| 2017 | 2017Crawler Tractors1000 | Crawler Tractors | 1000 | 0.5672 | 2.1186 | 6.0245 | 0.0066 | 0.1793 | 658 | 0.0512 |
| 2017 | 2017Crawler Tractors Composite | Crawler Tractors Composite | | 0.1258 | 0.5464 | 0.8617 | 0.0013 | 0.0500 | 114 | 0.0114 |
| 2017 | 2017Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.1086 | 0.4355 | 0.3739 | 0.0006 | 0.0274 | 44.0 | 0.0098 |
| 2017 | 2017Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0948 | 0.5547 | 0.6210 | 0.0010 | 0.0484 | 83.1 | 0.0086 |
| 2017 | 2017Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1380 | 0.9527 | 1.0155 | 0.0019 | 0.0545 | 167 | 0.0124 |
| 2017 | 2017Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1466 | 0.4993 | 1.2854 | 0.0028 | 0.0405 | 245 | 0.0132 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 2017Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.2135 | 0.7357 | 1.7109 | 0.0037 | 0.0582 | 374 | 0.0193 |
| 2017 | 2017Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3347 | 1.1549 | 2.7641 | 0.0059 | 0.0920 | 589 | 0.0302 |
| 2017 | 2017Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.8702 | 2.8310 | 10.1798 | 0.0131 | 0.2693 | 1,308 | 0.0785 |
| 2017 | 2017Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1219 | 0.6388 | 0.8113 | 0.0015 | 0.0473 | 132 | 0.0110 |
| 2017 | 2017Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0585 | 0.0001 | 0.0023 | 7.6 | 0.0008 |
| 2017 | 2017Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0585 | 0.0001 | 0.0023 | 7.6 | 0.0008 |
| 2017 | 2017Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2017 | 2017Excavators50 | Excavators | 50 | 0.0521 | 0.2568 | 0.2082 | 0.0003 | 0.0128 | 25.0 | 0.0047 |
| 2017 | 2017Excavators120 | Excavators | 120 | 0.0760 | 0.5042 | 0.4840 | 0.0009 | 0.0340 | 73.6 | 0.0069 |
| 2017 | 2017Excavators175 | Excavators | 175 | 0.0896 | 0.6644 | 0.5783 | 0.0013 | 0.0308 | 112 | 0.0081 |
| 2017 | 2017Excavators250 | Excavators | 250 | 0.0992 | 0.3354 | 0.6878 | 0.0018 | 0.0231 | 159 | 0.0090 |
| 2017 | 2017Excavators500 | Excavators | 500 | 0.1415 | 0.4762 | 0.8988 | 0.0023 | 0.0323 | 234 | 0.0128 |
| 2017 | 2017Excavators750 | Excavators | 750 | 0.2356 | 0.7890 | 1.5359 | 0.0039 | 0.0544 | 387 | 0.0213 |
| 2017 | 2017Excavators Composite | Excavators Composite | | 0.0916 | 0.5184 | 0.5858 | 0.0013 | 0.0289 | 120 | 0.0083 |
| 2017 | 2017Forklifts50 | Forklifts | 50 | 0.0254 | 0.1463 | 0.1228 | 0.0002 | 0.0068 | 14.7 | 0.0023 |
| 2017 | 2017Forklifts120 | Forklifts | 120 | 0.0287 | 0.2125 | 0.1926 | 0.0004 | 0.0128 | 31.2 | 0.0026 |
| 2017 | 2017Forklifts175 | Forklifts | 175 | 0.0425 | 0.3322 | 0.2685 | 0.0006 | 0.0146 | 56.1 | 0.0038 |
| 2017 | 2017Forklifts250 | Forklifts | 250 | 0.0467 | 0.1564 | 0.3057 | 0.0009 | 0.0103 | 77.1 | 0.0042 |
| 2017 | 2017Forklifts500 | Forklifts | 500 | 0.0659 | 0.2139 | 0.3937 | 0.0011 | 0.0145 | 111 | 0.0059 |
| 2017 | 2017Forklifts Composite | Forklifts Composite | | 0.0399 | 0.2181 | 0.2493 | 0.0006 | 0.0119 | 54.4 | 0.0036 |
| 2017 | 2017Generator Sets15 | Generator Sets | 15 | 0.0126 | 0.0647 | 0.0874 | 0.0002 | 0.0045 | 10.2 | 0.0011 |
| 2017 | 2017Generator Sets25 | Generator Sets | 25 | 0.0236 | 0.0799 | 0.1471 | 0.0002 | 0.0073 | 17.6 | 0.0021 |
| 2017 | 2017Generator Sets50 | Generator Sets | 50 | 0.0559 | 0.2326 | 0.2443 | 0.0004 | 0.0156 | 30.6 | 0.0050 |
| 2017 | 2017Generator Sets120 | Generator Sets | 120 | 0.0725 | 0.4728 | 0.5629 | 0.0009 | 0.0381 | 77.9 | 0.0065 |
| 2017 | 2017Generator Sets175 | Generator Sets | 175 | 0.0902 | 0.7328 | 0.8439 | 0.0016 | 0.0383 | 142 | 0.0081 |
| 2017 | 2017Generator Sets250 | Generator Sets | 250 | 0.0926 | 0.3988 | 1.1003 | 0.0024 | 0.0307 | 213 | 0.0084 |
| 2017 | 2017Generator Sets500 | Generator Sets | 500 | 0.1343 | 0.6237 | 1.5464 | 0.0033 | 0.0459 | 337 | 0.0121 |
| 2017 | 2017Generator Sets750 | Generator Sets | 750 | 0.2224 | 1.0068 | 2.5746 | 0.0055 | 0.0754 | 544 | 0.0201 |
| 2017 | 2017Generator Sets9999 | Generator Sets | 9999 | 0.5622 | 2.1570 | 7.9778 | 0.0105 | 0.1939 | 1,049 | 0.0507 |
| 2017 | 2017Generator Sets Composite | Generator Sets Composite | | 0.0527 | 0.2821 | 0.4052 | 0.0007 | 0.0216 | 61.0 | 0.0048 |
| 2017 | 2017Graders50 | Graders | 50 | 0.0743 | 0.2932 | 0.2387 | 0.0004 | 0.0176 | 27.5 | 0.0067 |
| 2017 | 2017Graders120 | Graders | 120 | 0.0928 | 0.5166 | 0.5753 | 0.0009 | 0.0447 | 75.0 | 0.0084 |
| 2017 | 2017Graders175 | Graders | 175 | 0.1135 | 0.7301 | 0.7781 | 0.0014 | 0.0429 | 124 | 0.0102 |
| 2017 | 2017Graders250 | Graders | 250 | 0.1180 | 0.3848 | 0.9383 | 0.0019 | 0.0321 | 172 | 0.0106 |
| 2017 | 2017Graders500 | Graders | 500 | 0.1497 | 0.5344 | 1.1139 | 0.0023 | 0.0400 | 229 | 0.0135 |
| 2017 | 2017Graders750 | Graders | 750 | 0.3187 | 1.1303 | 2.4323 | 0.0049 | 0.0862 | 486 | 0.0288 |
| 2017 | 2017Graders Composite | Graders Composite | | 0.1121 | 0.5844 | 0.8008 | 0.0015 | 0.0397 | 133 | 0.0101 |
| 2017 | 2017Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1712 | 0.6931 | 0.9973 | 0.0011 | 0.0834 | 93.7 | 0.0154 |
| 2017 | 2017Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1697 | 0.8122 | 1.1987 | 0.0015 | 0.0677 | 130 | 0.0153 |
| 2017 | 2017Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1344 | 0.4001 | 1.1003 | 0.0015 | 0.0446 | 130 | 0.0121 |
| 2017 | 2017Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.5434 | 2.2170 | 4.4309 | 0.0057 | 0.1765 | 568 | 0.0490 |
| 2017 | 2017Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.8220 | 3.4738 | 8.4378 | 0.0082 | 0.2696 | 814 | 0.0742 |
| 2017 | 2017Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1716 | 0.6906 | 1.3177 | 0.0017 | 0.0623 | 151 | 0.0155 |
| 2017 | 2017Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.1072 | 0.7547 | 0.6764 | 0.0014 | 0.0363 | 125 | 0.0097 |
| 2017 | 2017Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.1109 | 0.3608 | 0.7625 | 0.0019 | 0.0256 | 167 | 0.0100 |
| 2017 | 2017Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1753 | 0.5676 | 1.1034 | 0.0027 | 0.0397 | 272 | 0.0158 |
| 2017 | 2017Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2856 | 0.9204 | 1.8476 | 0.0044 | 0.0655 | 442 | 0.0258 |
| 2017 | 2017Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.4308 | 1.3660 | 4.6014 | 0.0063 | 0.1229 | 625 | 0.0389 |
| 2017 | 2017Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1712 | 0.5722 | 1.1851 | 0.0027 | 0.0407 | 260 | 0.0154 |
| 2017 | 2017Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2017 | 2017Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2017 | 2017Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0468 | 0.2392 | 0.2185 | 0.0004 | 0.0125 | 28.0 | 0.0042 |
| 2017 | 2017Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0671 | 0.5141 | 0.5013 | 0.0009 | 0.0329 | 80.9 | 0.0061 |
| 2017 | 2017Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0665 | 0.5860 | 0.5133 | 0.0012 | 0.0252 | 107 | 0.0060 |
| 2017 | 2017Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1181 | 0.4796 | 0.9136 | 0.0025 | 0.0311 | 254 | 0.0107 |
| 2017 | 2017Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0675 | 0.3568 | 0.5044 | 0.0013 | 0.0206 | 123 | 0.0061 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 2017Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2017 | 2017Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2017 | 2017Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0621 | 0.2377 | 0.1935 | 0.0003 | 0.0152 | 21.7 | 0.0056 |
| 2017 | 2017Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0811 | 0.4307 | 0.4956 | 0.0007 | 0.0404 | 62.0 | 0.0073 |
| 2017 | 2017Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0911 | 0.5665 | 0.6307 | 0.0011 | 0.0351 | 95.9 | 0.0082 |
| 2017 | 2017Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0936 | 0.2900 | 0.7778 | 0.0015 | 0.0249 | 136 | 0.0084 |
| 2017 | 2017Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1745 | 0.5443 | 1.3258 | 0.0026 | 0.0459 | 265 | 0.0157 |
| 2017 | 2017Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2894 | 0.8971 | 2.2570 | 0.0044 | 0.0770 | 437 | 0.0261 |
| 2017 | 2017Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.4068 | 1.2739 | 4.6403 | 0.0056 | 0.1274 | 560 | 0.0367 |
| 2017 | 2017Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1187 | 0.4650 | 0.9138 | 0.0016 | 0.0379 | 152 | 0.0107 |
| 2017 | 2017Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0860 | 0.3282 | 0.2689 | 0.0004 | 0.0211 | 30.3 | 0.0078 |
| 2017 | 2017Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0786 | 0.4192 | 0.4839 | 0.0007 | 0.0394 | 60.7 | 0.0071 |
| 2017 | 2017Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.1146 | 0.7173 | 0.8014 | 0.0014 | 0.0445 | 122 | 0.0103 |
| 2017 | 2017Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0988 | 0.3087 | 0.8309 | 0.0016 | 0.0266 | 145 | 0.0089 |
| 2017 | 2017Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1243 | 0.3915 | 0.9560 | 0.0019 | 0.0330 | 192 | 0.0112 |
| 2017 | 2017Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.5621 | 1.6821 | 6.1372 | 0.0073 | 0.1681 | 741 | 0.0507 |
| 2017 | 2017Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.1123 | 0.4544 | 0.8948 | 0.0015 | 0.0366 | 141 | 0.0101 |
| 2017 | 2017Pavers25 | Pavers | 25 | 0.0228 | 0.0771 | 0.1440 | 0.0002 | 0.0058 | 18.7 | 0.0021 |
| 2017 | 2017Pavers50 | Pavers | 50 | 0.1040 | 0.3262 | 0.2615 | 0.0004 | 0.0234 | 28.0 | 0.0094 |
| 2017 | 2017Pavers120 | Pavers | 120 | 0.1095 | 0.4895 | 0.6606 | 0.0008 | 0.0548 | 69.2 | 0.0099 |
| 2017 | 2017Pavers175 | Pavers | 175 | 0.1443 | 0.7653 | 1.0437 | 0.0014 | 0.0582 | 128 | 0.0130 |
| 2017 | 2017Pavers250 | Pavers | 250 | 0.1664 | 0.5174 | 1.4290 | 0.0022 | 0.0537 | 194 | 0.0150 |
| 2017 | 2017Pavers500 | Pavers | 500 | 0.1858 | 0.7239 | 1.5415 | 0.0023 | 0.0588 | 233 | 0.0168 |
| 2017 | 2017Pavers Composite | Pavers Composite | | 0.1193 | 0.5073 | 0.6672 | 0.0009 | 0.0453 | 77.9 | 0.0108 |
| 2017 | 2017Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2017 | 2017Paving Equipment50 | Paving Equipment | 50 | 0.0885 | 0.2760 | 0.2230 | 0.0003 | 0.0200 | 23.9 | 0.0080 |
| 2017 | 2017Paving Equipment120 | Paving Equipment | 120 | 0.0858 | 0.3834 | 0.5187 | 0.0006 | 0.0433 | 54.5 | 0.0077 |
| 2017 | 2017Paving Equipment175 | Paving Equipment | 175 | 0.1124 | 0.5987 | 0.8196 | 0.0011 | 0.0458 | 101 | 0.0101 |
| 2017 | 2017Paving Equipment250 | Paving Equipment | 250 | 0.1018 | 0.3178 | 0.8949 | 0.0014 | 0.0329 | 122 | 0.0092 |
| 2017 | 2017Paving Equipment Composite | Paving Equipment Composite | | 0.0910 | 0.4165 | 0.5965 | 0.0008 | 0.0404 | 68.9 | 0.0082 |
| 2017 | 2017Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2017 | 2017Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2017 | 2017Pressure Washers15 | Pressure Washers | 15 | 0.0060 | 0.0310 | 0.0419 | 0.0001 | 0.0022 | 4.9 | 0.0005 |
| 2017 | 2017Pressure Washers25 | Pressure Washers | 25 | 0.0096 | 0.0324 | 0.0596 | 0.0001 | 0.0030 | 7.1 | 0.0009 |
| 2017 | 2017Pressure Washers50 | Pressure Washers | 50 | 0.0195 | 0.0918 | 0.1098 | 0.0002 | 0.0061 | 14.3 | 0.0018 |
| 2017 | 2017Pressure Washers120 | Pressure Washers | 120 | 0.0191 | 0.1393 | 0.1659 | 0.0003 | 0.0100 | 24.1 | 0.0017 |
| 2017 | 2017Pressure Washers Composite | Pressure Washers Composite | | 0.0111 | 0.0570 | 0.0733 | 0.0001 | 0.0040 | 9.4 | 0.0010 |
| 2017 | 2017Pumps15 | Pumps | 15 | 0.0103 | 0.0471 | 0.0641 | 0.0001 | 0.0036 | 7.4 | 0.0009 |
| 2017 | 2017Pumps25 | Pumps | 25 | 0.0286 | 0.0883 | 0.1625 | 0.0002 | 0.0084 | 19.5 | 0.0026 |
| 2017 | 2017Pumps50 | Pumps | 50 | 0.0680 | 0.2744 | 0.2773 | 0.0004 | 0.0184 | 34.3 | 0.0061 |
| 2017 | 2017Pumps120 | Pumps | 120 | 0.0760 | 0.4802 | 0.5715 | 0.0009 | 0.0400 | 77.9 | 0.0069 |
| 2017 | 2017Pumps175 | Pumps | 175 | 0.0940 | 0.7342 | 0.8462 | 0.0016 | 0.0398 | 140 | 0.0085 |
| 2017 | 2017Pumps250 | Pumps | 250 | 0.0932 | 0.3841 | 1.0601 | 0.0023 | 0.0303 | 201 | 0.0084 |
| 2017 | 2017Pumps500 | Pumps | 500 | 0.1468 | 0.6478 | 1.6054 | 0.0034 | 0.0489 | 345 | 0.0132 |
| 2017 | 2017Pumps750 | Pumps | 750 | 0.2481 | 1.0709 | 2.7377 | 0.0057 | 0.0823 | 571 | 0.0224 |
| 2017 | 2017Pumps9999 | Pumps | 9999 | 0.7548 | 2.8273 | 10.4295 | 0.0136 | 0.2569 | 1,355 | 0.0681 |
| 2017 | 2017Pumps Composite | Pumps Composite | | 0.0508 | 0.2751 | 0.3560 | 0.0006 | 0.0214 | 49.6 | 0.0046 |
| 2017 | 2017Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2017 | 2017Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2017 | 2017Rollers50 | Rollers | 50 | 0.0729 | 0.2611 | 0.2245 | 0.0003 | 0.0174 | 26.0 | 0.0066 |
| 2017 | 2017Rollers120 | Rollers | 120 | 0.0736 | 0.3944 | 0.4749 | 0.0007 | 0.0378 | 59.0 | 0.0066 |
| 2017 | 2017Rollers175 | Rollers | 175 | 0.0964 | 0.6140 | 0.7248 | 0.0012 | 0.0393 | 108 | 0.0087 |
| 2017 | 2017Rollers250 | Rollers | 250 | 0.0985 | 0.3375 | 0.9035 | 0.0017 | 0.0302 | 153 | 0.0089 |
| 2017 | 2017Rollers500 | Rollers | 500 | 0.1323 | 0.5091 | 1.1463 | 0.0022 | 0.0401 | 219 | 0.0119 |
| 2017 | 2017Rollers Composite | Rollers Composite | | 0.0736 | 0.3913 | 0.4866 | 0.0008 | 0.0322 | 67.0 | 0.0066 |
| 2017 | 2017Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0743 | 0.3373 | 0.2846 | 0.0004 | 0.0190 | 33.9 | 0.0067 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 2017Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0660 | 0.4203 | 0.4341 | 0.0007 | 0.0319 | 62.4 | 0.0060 |
| 2017 | 2017Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0993 | 0.7233 | 0.6899 | 0.0014 | 0.0371 | 125 | 0.0090 |
| 2017 | 2017Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.1047 | 0.3544 | 0.8098 | 0.0019 | 0.0269 | 171 | 0.0094 |
| 2017 | 2017Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1514 | 0.5104 | 1.0707 | 0.0025 | 0.0383 | 257 | 0.0137 |
| 2017 | 2017Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0704 | 0.4522 | 0.4645 | 0.0008 | 0.0323 | 70.3 | 0.0064 |
| 2017 | 2017Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1763 | 0.8232 | 1.2239 | 0.0015 | 0.0692 | 129 | 0.0159 |
| 2017 | 2017Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1992 | 0.5845 | 1.5954 | 0.0021 | 0.0654 | 183 | 0.0180 |
| 2017 | 2017Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2660 | 1.0972 | 2.0893 | 0.0026 | 0.0849 | 265 | 0.0240 |
| 2017 | 2017Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.4016 | 1.6469 | 3.2071 | 0.0040 | 0.1289 | 399 | 0.0362 |
| 2017 | 2017Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.6276 | 2.6606 | 6.2665 | 0.0060 | 0.2034 | 592 | 0.0566 |
| 2017 | 2017Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2465 | 0.9300 | 1.9508 | 0.0025 | 0.0796 | 239 | 0.0222 |
| 2017 | 2017Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2017 | 2017Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0818 | 0.3270 | 0.2684 | 0.0004 | 0.0195 | 31.1 | 0.0074 |
| 2017 | 2017Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0714 | 0.4038 | 0.4460 | 0.0007 | 0.0346 | 58.9 | 0.0064 |
| 2017 | 2017Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0954 | 0.6234 | 0.6571 | 0.0012 | 0.0362 | 106 | 0.0086 |
| 2017 | 2017Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.1000 | 0.3290 | 0.7984 | 0.0017 | 0.0272 | 149 | 0.0090 |
| 2017 | 2017Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1514 | 0.5411 | 1.1288 | 0.0023 | 0.0405 | 237 | 0.0137 |
| 2017 | 2017Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.3121 | 1.1077 | 2.3876 | 0.0049 | 0.0844 | 486 | 0.0282 |
| 2017 | 2017Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.4149 | 1.4822 | 4.7146 | 0.0060 | 0.1302 | 594 | 0.0374 |
| 2017 | 2017Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0920 | 0.4510 | 0.6446 | 0.0012 | 0.0336 | 109 | 0.0083 |
| 2017 | 2017Scrapers120 | Scrapers | 120 | 0.1471 | 0.6728 | 0.8712 | 0.0011 | 0.0719 | 93.9 | 0.0133 |
| 2017 | 2017Scrapers175 | Scrapers | 175 | 0.1673 | 0.8975 | 1.1638 | 0.0017 | 0.0655 | 148 | 0.0151 |
| 2017 | 2017Scrapers250 | Scrapers | 250 | 0.1805 | 0.5495 | 1.4783 | 0.0024 | 0.0552 | 209 | 0.0163 |
| 2017 | 2017Scrapers500 | Scrapers | 500 | 0.2594 | 0.9602 | 2.0375 | 0.0032 | 0.0777 | 321 | 0.0234 |
| 2017 | 2017Scrapers750 | Scrapers | 750 | 0.4502 | 1.6557 | 3.6101 | 0.0056 | 0.1359 | 555 | 0.0406 |
| 2017 | 2017Scrapers Composite | Scrapers Composite | | 0.2257 | 0.8713 | 1.7483 | 0.0027 | 0.0716 | 262 | 0.0204 |
| 2017 | 2017Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2017 | 2017Signal Boards50 | Signal Boards | 50 | 0.0738 | 0.3047 | 0.2923 | 0.0005 | 0.0195 | 36.2 | 0.0067 |
| 2017 | 2017Signal Boards120 | Signal Boards | 120 | 0.0781 | 0.5033 | 0.5729 | 0.0009 | 0.0410 | 80.2 | 0.0070 |
| 2017 | 2017Signal Boards175 | Signal Boards | 175 | 0.1057 | 0.8280 | 0.8988 | 0.0017 | 0.0440 | 155 | 0.0095 |
| 2017 | 2017Signal Boards250 | Signal Boards | 250 | 0.1230 | 0.4919 | 1.2834 | 0.0029 | 0.0379 | 255 | 0.0111 |
| 2017 | 2017Signal Boards Composite | Signal Boards Composite | | 0.0151 | 0.0918 | 0.1098 | 0.0002 | 0.0055 | 16.7 | 0.0014 |
| 2017 | 2017Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0179 | 0.0588 | 0.1090 | 0.0002 | 0.0050 | 13.8 | 0.0016 |
| 2017 | 2017Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0288 | 0.2057 | 0.1865 | 0.0003 | 0.0079 | 25.5 | 0.0026 |
| 2017 | 2017Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0268 | 0.2686 | 0.2172 | 0.0005 | 0.0114 | 42.8 | 0.0024 |
| 2017 | 2017Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0274 | 0.2161 | 0.1912 | 0.0004 | 0.0088 | 30.3 | 0.0025 |
| 2017 | 2017Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0346 | 0.1270 | 0.1178 | 0.0002 | 0.0085 | 14.1 | 0.0031 |
| 2017 | 2017Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0722 | 0.4096 | 0.4995 | 0.0007 | 0.0368 | 63.8 | 0.0065 |
| 2017 | 2017Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0685 | 0.4685 | 0.5589 | 0.0010 | 0.0282 | 85.8 | 0.0062 |
| 2017 | 2017Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0780 | 0.2927 | 0.7732 | 0.0015 | 0.0253 | 135 | 0.0070 |
| 2017 | 2017Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1186 | 0.5248 | 1.1392 | 0.0022 | 0.0385 | 221 | 0.0107 |
| 2017 | 2017Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1888 | 0.8224 | 1.8408 | 0.0035 | 0.0614 | 347 | 0.0170 |
| 2017 | 2017Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0981 | 0.4333 | 0.8855 | 0.0017 | 0.0321 | 166 | 0.0088 |
| 2017 | 2017Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2017 | 2017Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2017 | 2017Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0581 | 0.3019 | 0.2627 | 0.0004 | 0.0158 | 31.6 | 0.0052 |
| 2017 | 2017Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0701 | 0.4996 | 0.4855 | 0.0009 | 0.0336 | 75.0 | 0.0063 |
| 2017 | 2017Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.1029 | 0.8018 | 0.7099 | 0.0016 | 0.0381 | 139 | 0.0093 |
| 2017 | 2017Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0936 | 0.3232 | 0.6970 | 0.0018 | 0.0230 | 162 | 0.0084 |
| 2017 | 2017Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0737 | 0.4962 | 0.4726 | 0.0009 | 0.0288 | 78.5 | 0.0067 |
| 2017 | 2017Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0192 | 0.0653 | 0.1213 | 0.0002 | 0.0047 | 15.9 | 0.0017 |
| 2017 | 2017Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0555 | 0.2889 | 0.2435 | 0.0004 | 0.0141 | 30.3 | 0.0050 |
| 2017 | 2017Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0477 | 0.3442 | 0.3216 | 0.0006 | 0.0217 | 51.7 | 0.0043 |
| 2017 | 2017Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0726 | 0.5847 | 0.4886 | 0.0011 | 0.0254 | 101 | 0.0066 |
| 2017 | 2017Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0968 | 0.3506 | 0.6887 | 0.0019 | 0.0229 | 172 | 0.0087 |
| 2017 | 2017Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1886 | 0.6859 | 1.2315 | 0.0039 | 0.0438 | 345 | 0.0170 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 2017Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2842 | 1.0286 | 1.9040 | 0.0058 | 0.0668 | 517 | 0.0256 |
| 2017 | 2017Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0559 | 0.3666 | 0.3681 | 0.0008 | 0.0222 | 66.8 | 0.0050 |
| 2017 | 2017Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2017 | 2017Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2017 | 2017Trenchers50 | Trenchers | 50 | 0.1222 | 0.3728 | 0.3051 | 0.0004 | 0.0274 | 32.9 | 0.0110 |
| 2017 | 2017Trenchers120 | Trenchers | 120 | 0.1018 | 0.4529 | 0.6266 | 0.0008 | 0.0514 | 64.9 | 0.0092 |
| 2017 | 2017Trenchers175 | Trenchers | 175 | 0.1590 | 0.8464 | 1.1893 | 0.0016 | 0.0653 | 144 | 0.0143 |
| 2017 | 2017Trenchers250 | Trenchers | 250 | 0.1883 | 0.6031 | 1.6715 | 0.0025 | 0.0635 | 223 | 0.0170 |
| 2017 | 2017Trenchers500 | Trenchers | 500 | 0.2433 | 1.0086 | 2.1048 | 0.0031 | 0.0805 | 311 | 0.0220 |
| 2017 | 2017Trenchers750 | Trenchers | 750 | 0.4610 | 1.8971 | 4.0616 | 0.0059 | 0.1535 | 587 | 0.0416 |
| 2017 | 2017Trenchers Composite | Trenchers Composite | | 0.1129 | 0.4422 | 0.5410 | 0.0007 | 0.0423 | 58.7 | 0.0102 |
| 2017 | 2017Welders15 | Welders | 15 | 0.0086 | 0.0394 | 0.0536 | 0.0001 | 0.0030 | 6.2 | 0.0008 |
| 2017 | 2017Welders25 | Welders | 25 | 0.0166 | 0.0511 | 0.0941 | 0.0001 | 0.0049 | 11.3 | 0.0015 |
| 2017 | 2017Welders50 | Welders | 50 | 0.0638 | 0.2408 | 0.2183 | 0.0003 | 0.0162 | 26.0 | 0.0058 |
| 2017 | 2017Welders120 | Welders | 120 | 0.0444 | 0.2559 | 0.3033 | 0.0005 | 0.0234 | 39.5 | 0.0040 |
| 2017 | 2017Welders175 | Welders | 175 | 0.0774 | 0.5404 | 0.6214 | 0.0011 | 0.0322 | 98.2 | 0.0070 |
| 2017 | 2017Welders250 | Welders | 250 | 0.0657 | 0.2384 | 0.6582 | 0.0013 | 0.0200 | 119 | 0.0059 |
| 2017 | 2017Welders500 | Welders | 500 | 0.0865 | 0.3263 | 0.8096 | 0.0016 | 0.0264 | 168 | 0.0078 |
| 2017 | 2017Welders Composite | Welders Composite | | 0.0434 | 0.1912 | 0.2054 | 0.0003 | 0.0150 | 25.6 | 0.0039 |
| 2018 | 2018Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2018 | 2018Aerial Lifts25 | Aerial Lifts | 25 | 0.0143 | 0.0468 | 0.0865 | 0.0001 | 0.0039 | 11.0 | 0.0013 |
| 2018 | 2018Aerial Lifts50 | Aerial Lifts | 50 | 0.0336 | 0.1506 | 0.1525 | 0.0003 | 0.0093 | 19.6 | 0.0030 |
| 2018 | 2018Aerial Lifts120 | Aerial Lifts | 120 | 0.0327 | 0.2319 | 0.2565 | 0.0004 | 0.0170 | 38.1 | 0.0029 |
| 2018 | 2018Aerial Lifts500 | Aerial Lifts | 500 | 0.0840 | 0.3899 | 0.8852 | 0.0021 | 0.0270 | 213 | 0.0076 |
| 2018 | 2018Aerial Lifts750 | Aerial Lifts | 750 | 0.1545 | 0.7049 | 1.6423 | 0.0039 | 0.0494 | 385 | 0.0139 |
| 2018 | 2018Aerial Lifts Composite | Aerial Lifts Composite | | 0.0322 | 0.1740 | 0.2152 | 0.0004 | 0.0119 | 34.7 | 0.0029 |
| 2018 | 2018Air Compressors15 | Air Compressors | 15 | 0.0098 | 0.0456 | 0.0608 | 0.0001 | 0.0033 | 7.2 | 0.0009 |
| 2018 | 2018Air Compressors25 | Air Compressors | 25 | 0.0207 | 0.0645 | 0.1187 | 0.0002 | 0.0060 | 14.4 | 0.0019 |
| 2018 | 2018Air Compressors50 | Air Compressors | 50 | 0.0518 | 0.2142 | 0.1848 | 0.0003 | 0.0131 | 22.3 | 0.0047 |
| 2018 | 2018Air Compressors120 | Air Compressors | 120 | 0.0504 | 0.3097 | 0.3370 | 0.0006 | 0.0255 | 47.0 | 0.0045 |
| 2018 | 2018Air Compressors175 | Air Compressors | 175 | 0.0685 | 0.4994 | 0.5069 | 0.0010 | 0.0268 | 88.5 | 0.0062 |
| 2018 | 2018Air Compressors250 | Air Compressors | 250 | 0.0747 | 0.2653 | 0.6529 | 0.0015 | 0.0206 | 131 | 0.0067 |
| 2018 | 2018Air Compressors500 | Air Compressors | 500 | 0.1262 | 0.4504 | 1.0161 | 0.0023 | 0.0345 | 232 | 0.0114 |
| 2018 | 2018Air Compressors750 | Air Compressors | 750 | 0.1960 | 0.6961 | 1.6134 | 0.0036 | 0.0540 | 358 | 0.0177 |
| 2018 | 2018Air Compressors1000 | Air Compressors | 1000 | 0.2958 | 1.0416 | 3.7257 | 0.0049 | 0.0965 | 486 | 0.0267 |
| 2018 | 2018Air Compressors Composite | Air Compressors Composite | | 0.0582 | 0.3130 | 0.3935 | 0.0007 | 0.0246 | 63.6 | 0.0052 |
| 2018 | 2018Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2018 | 2018Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2018 | 2018Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0204 | 0.2211 | 0.1897 | 0.0004 | 0.0034 | 31.0 | 0.0018 |
| 2018 | 2018Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0308 | 0.4665 | 0.2710 | 0.0009 | 0.0072 | 77.1 | 0.0028 |
| 2018 | 2018Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0475 | 0.7542 | 0.2910 | 0.0016 | 0.0092 | 141 | 0.0043 |
| 2018 | 2018Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0538 | 0.3426 | 0.2499 | 0.0021 | 0.0068 | 188 | 0.0049 |
| 2018 | 2018Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0887 | 0.5512 | 0.4035 | 0.0031 | 0.0112 | 311 | 0.0080 |
| 2018 | 2018Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1755 | 1.0891 | 0.8022 | 0.0062 | 0.0222 | 615 | 0.0158 |
| 2018 | 2018Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2789 | 1.6441 | 4.2095 | 0.0093 | 0.0723 | 928 | 0.0252 |
| 2018 | 2018Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0539 | 0.5011 | 0.4175 | 0.0017 | 0.0099 | 165 | 0.0049 |
| 2018 | 2018Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2018 | 2018Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0232 | 0.0754 | 0.1391 | 0.0002 | 0.0064 | 17.6 | 0.0021 |
| 2018 | 2018Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0087 | 0.0416 | 0.0538 | 0.0001 | 0.0022 | 7.2 | 0.0008 |
| 2018 | 2018Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2018 | 2018Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0549 | 0.2534 | 0.2388 | 0.0004 | 0.0148 | 30.2 | 0.0050 |
| 2018 | 2018Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0650 | 0.4661 | 0.4898 | 0.0009 | 0.0335 | 74.1 | 0.0059 |
| 2018 | 2018Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.1012 | 0.8661 | 0.8304 | 0.0018 | 0.0410 | 160 | 0.0091 |
| 2018 | 2018Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0605 | 0.3850 | 0.3959 | 0.0007 | 0.0261 | 58.5 | 0.0055 |
| 2018 | 2018Cranes50 | Cranes | 50 | 0.0646 | 0.2527 | 0.2019 | 0.0003 | 0.0151 | 23.2 | 0.0058 |
| 2018 | 2018Cranes120 | Cranes | 120 | 0.0639 | 0.3486 | 0.3857 | 0.0006 | 0.0306 | 50.1 | 0.0058 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 2018Cranes175 | Cranes | 175 | 0.0752 | 0.4766 | 0.5029 | 0.0009 | 0.0283 | 80.3 | 0.0068 |
| 2018 | 2018Cranes250 | Cranes | 250 | 0.0787 | 0.2521 | 0.6168 | 0.0013 | 0.0212 | 112 | 0.0071 |
| 2018 | 2018Cranes500 | Cranes | 500 | 0.1202 | 0.4085 | 0.8748 | 0.0018 | 0.0317 | 180 | 0.0108 |
| 2018 | 2018Cranes750 | Cranes | 750 | 0.2034 | 0.6869 | 1.5239 | 0.0030 | 0.0544 | 303 | 0.0184 |
| 2018 | 2018Cranes9999 | Cranes | 9999 | 0.7422 | 2.3933 | 7.8338 | 0.0098 | 0.2146 | 971 | 0.0670 |
| 2018 | 2018Cranes Composite | Cranes Composite | | 0.1012 | 0.4060 | 0.7908 | 0.0014 | 0.0318 | 129 | 0.0091 |
| 2018 | 2018Crawler Tractors50 | Crawler Tractors | 50 | 0.0813 | 0.2884 | 0.2240 | 0.0003 | 0.0181 | 24.9 | 0.0073 |
| 2018 | 2018Crawler Tractors120 | Crawler Tractors | 120 | 0.0945 | 0.4679 | 0.5589 | 0.0008 | 0.0448 | 65.8 | 0.0085 |
| 2018 | 2018Crawler Tractors175 | Crawler Tractors | 175 | 0.1270 | 0.7327 | 0.8534 | 0.0014 | 0.0479 | 121 | 0.0115 |
| 2018 | 2018Crawler Tractors250 | Crawler Tractors | 250 | 0.1333 | 0.4179 | 1.0430 | 0.0019 | 0.0385 | 166 | 0.0120 |
| 2018 | 2018Crawler Tractors500 | Crawler Tractors | 500 | 0.1959 | 0.7202 | 1.4625 | 0.0025 | 0.0554 | 259 | 0.0177 |
| 2018 | 2018Crawler Tractors750 | Crawler Tractors | 750 | 0.3529 | 1.2889 | 2.6916 | 0.0047 | 0.1006 | 465 | 0.0318 |
| 2018 | 2018Crawler Tractors1000 | Crawler Tractors | 1000 | 0.5380 | 2.0171 | 5.7362 | 0.0066 | 0.1663 | 658 | 0.0485 |
| 2018 | 2018Crawler Tractors Composite | Crawler Tractors Composite | | 0.1185 | 0.5387 | 0.7960 | 0.0013 | 0.0457 | 114 | 0.0107 |
| 2018 | 2018Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0949 | 0.4230 | 0.3607 | 0.0006 | 0.0241 | 44.0 | 0.0086 |
| 2018 | 2018Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0849 | 0.5506 | 0.5679 | 0.0010 | 0.0416 | 83.1 | 0.0077 |
| 2018 | 2018Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1258 | 0.9520 | 0.8975 | 0.0019 | 0.0475 | 167 | 0.0113 |
| 2018 | 2018Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1386 | 0.4932 | 1.1284 | 0.0028 | 0.0359 | 245 | 0.0125 |
| 2018 | 2018Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.2037 | 0.7231 | 1.5205 | 0.0037 | 0.0524 | 374 | 0.0184 |
| 2018 | 2018Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3193 | 1.1368 | 2.4441 | 0.0059 | 0.0824 | 589 | 0.0288 |
| 2018 | 2018Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.8312 | 2.7569 | 9.5902 | 0.0131 | 0.2467 | 1,308 | 0.0750 |
| 2018 | 2018Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1109 | 0.6328 | 0.7330 | 0.0015 | 0.0412 | 132 | 0.0100 |
| 2018 | 2018Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0584 | 0.0001 | 0.0023 | 7.6 | 0.0008 |
| 2018 | 2018Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0584 | 0.0001 | 0.0023 | 7.6 | 0.0008 |
| 2018 | 2018Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2018 | 2018Excavators50 | Excavators | 50 | 0.0468 | 0.2521 | 0.2002 | 0.0003 | 0.0111 | 25.0 | 0.0042 |
| 2018 | 2018Excavators120 | Excavators | 120 | 0.0693 | 0.5017 | 0.4425 | 0.0009 | 0.0289 | 73.6 | 0.0063 |
| 2018 | 2018Excavators175 | Excavators | 175 | 0.0824 | 0.6641 | 0.5069 | 0.0013 | 0.0264 | 112 | 0.0074 |
| 2018 | 2018Excavators250 | Excavators | 250 | 0.0933 | 0.3323 | 0.5984 | 0.0018 | 0.0202 | 159 | 0.0084 |
| 2018 | 2018Excavators500 | Excavators | 500 | 0.1339 | 0.4689 | 0.7881 | 0.0023 | 0.0284 | 234 | 0.0121 |
| 2018 | 2018Excavators750 | Excavators | 750 | 0.2224 | 0.7769 | 1.3381 | 0.0039 | 0.0476 | 387 | 0.0201 |
| 2018 | 2018Excavators Composite | Excavators Composite | | 0.0848 | 0.5160 | 0.5181 | 0.0013 | 0.0249 | 120 | 0.0077 |
| 2018 | 2018Forklifts50 | Forklifts | 50 | 0.0229 | 0.1440 | 0.1180 | 0.0002 | 0.0058 | 14.7 | 0.0021 |
| 2018 | 2018Forklifts120 | Forklifts | 120 | 0.0265 | 0.2118 | 0.1745 | 0.0004 | 0.0108 | 31.2 | 0.0024 |
| 2018 | 2018Forklifts175 | Forklifts | 175 | 0.0394 | 0.3322 | 0.2328 | 0.0006 | 0.0125 | 56.1 | 0.0036 |
| 2018 | 2018Forklifts250 | Forklifts | 250 | 0.0440 | 0.1559 | 0.2594 | 0.0009 | 0.0089 | 77.1 | 0.0040 |
| 2018 | 2018Forklifts500 | Forklifts | 500 | 0.0623 | 0.2131 | 0.3432 | 0.0011 | 0.0125 | 111 | 0.0056 |
| 2018 | 2018Forklifts Composite | Forklifts Composite | | 0.0372 | 0.2173 | 0.2186 | 0.0006 | 0.0101 | 54.4 | 0.0034 |
| 2018 | 2018Generator Sets15 | Generator Sets | 15 | 0.0123 | 0.0644 | 0.0852 | 0.0002 | 0.0043 | 10.2 | 0.0011 |
| 2018 | 2018Generator Sets25 | Generator Sets | 25 | 0.0231 | 0.0788 | 0.1449 | 0.0002 | 0.0070 | 17.6 | 0.0021 |
| 2018 | 2018Generator Sets50 | Generator Sets | 50 | 0.0491 | 0.2265 | 0.2357 | 0.0004 | 0.0138 | 30.6 | 0.0044 |
| 2018 | 2018Generator Sets120 | Generator Sets | 120 | 0.0642 | 0.4694 | 0.5181 | 0.0009 | 0.0333 | 77.9 | 0.0058 |
| 2018 | 2018Generator Sets175 | Generator Sets | 175 | 0.0808 | 0.7324 | 0.7528 | 0.0016 | 0.0337 | 142 | 0.0073 |
| 2018 | 2018Generator Sets250 | Generator Sets | 250 | 0.0857 | 0.3931 | 0.9756 | 0.0024 | 0.0274 | 213 | 0.0077 |
| 2018 | 2018Generator Sets500 | Generator Sets | 500 | 0.1264 | 0.6113 | 1.3836 | 0.0033 | 0.0415 | 337 | 0.0114 |
| 2018 | 2018Generator Sets750 | Generator Sets | 750 | 0.2080 | 0.9868 | 2.2918 | 0.0055 | 0.0679 | 544 | 0.0188 |
| 2018 | 2018Generator Sets9999 | Generator Sets | 9999 | 0.5230 | 2.0948 | 7.5356 | 0.0105 | 0.1778 | 1,049 | 0.0472 |
| 2018 | 2018Generator Sets Composite | Generator Sets Composite | | 0.0477 | 0.2786 | 0.3759 | 0.0007 | 0.0192 | 61.0 | 0.0043 |
| 2018 | 2018Graders50 | Graders | 50 | 0.0676 | 0.2868 | 0.2305 | 0.0004 | 0.0157 | 27.5 | 0.0061 |
| 2018 | 2018Graders120 | Graders | 120 | 0.0860 | 0.5138 | 0.5323 | 0.0009 | 0.0398 | 75.0 | 0.0078 |
| 2018 | 2018Graders175 | Graders | 175 | 0.1059 | 0.7294 | 0.7002 | 0.0014 | 0.0385 | 124 | 0.0096 |
| 2018 | 2018Graders250 | Graders | 250 | 0.1115 | 0.3778 | 0.8409 | 0.0019 | 0.0287 | 172 | 0.0101 |
| 2018 | 2018Graders500 | Graders | 500 | 0.1420 | 0.5194 | 0.9989 | 0.0023 | 0.0359 | 229 | 0.0128 |
| 2018 | 2018Graders750 | Graders | 750 | 0.3024 | 1.0988 | 2.1820 | 0.0049 | 0.0774 | 486 | 0.0273 |
| 2018 | 2018Graders Composite | Graders Composite | | 0.1049 | 0.5812 | 0.7217 | 0.0015 | 0.0355 | 133 | 0.0095 |
| 2018 | 2018Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1622 | 0.6879 | 0.9427 | 0.0011 | 0.0779 | 93.7 | 0.0146 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 2018Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1614 | 0.8085 | 1.1191 | 0.0015 | 0.0632 | 130 | 0.0146 |
| 2018 | 2018Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1275 | 0.3861 | 1.0244 | 0.0015 | 0.0411 | 130 | 0.0115 |
| 2018 | 2018Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.5173 | 2.0914 | 4.1264 | 0.0057 | 0.1633 | 568 | 0.0467 |
| 2018 | 2018Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.7842 | 3.2770 | 8.0820 | 0.0082 | 0.2526 | 814 | 0.0708 |
| 2018 | 2018Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1631 | 0.6762 | 1.2293 | 0.0017 | 0.0579 | 151 | 0.0147 |
| 2018 | 2018Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0983 | 0.7542 | 0.5947 | 0.0014 | 0.0314 | 125 | 0.0089 |
| 2018 | 2018Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.1042 | 0.3572 | 0.6660 | 0.0019 | 0.0225 | 167 | 0.0094 |
| 2018 | 2018Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1656 | 0.5578 | 0.9706 | 0.0027 | 0.0351 | 272 | 0.0149 |
| 2018 | 2018Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2693 | 0.9044 | 1.6152 | 0.0044 | 0.0577 | 442 | 0.0243 |
| 2018 | 2018Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.4058 | 1.3339 | 4.3394 | 0.0063 | 0.1110 | 625 | 0.0366 |
| 2018 | 2018Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1613 | 0.5634 | 1.0525 | 0.0027 | 0.0360 | 260 | 0.0146 |
| 2018 | 2018Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2018 | 2018Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2018 | 2018Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0412 | 0.2342 | 0.2102 | 0.0004 | 0.0108 | 28.0 | 0.0037 |
| 2018 | 2018Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0604 | 0.5116 | 0.4573 | 0.0009 | 0.0279 | 80.9 | 0.0054 |
| 2018 | 2018Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0608 | 0.5859 | 0.4478 | 0.0012 | 0.0218 | 107 | 0.0055 |
| 2018 | 2018Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1122 | 0.4743 | 0.8004 | 0.0025 | 0.0275 | 254 | 0.0101 |
| 2018 | 2018Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0633 | 0.3542 | 0.4478 | 0.0013 | 0.0181 | 123 | 0.0057 |
| 2018 | 2018Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2018 | 2018Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2018 | 2018Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0548 | 0.2314 | 0.1869 | 0.0003 | 0.0134 | 21.7 | 0.0049 |
| 2018 | 2018Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0732 | 0.4277 | 0.4544 | 0.0007 | 0.0350 | 62.0 | 0.0066 |
| 2018 | 2018Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0835 | 0.5664 | 0.5608 | 0.0011 | 0.0307 | 95.9 | 0.0075 |
| 2018 | 2018Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0884 | 0.2862 | 0.6866 | 0.0015 | 0.0221 | 136 | 0.0080 |
| 2018 | 2018Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1664 | 0.5336 | 1.1846 | 0.0026 | 0.0412 | 265 | 0.0150 |
| 2018 | 2018Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2755 | 0.8795 | 2.0057 | 0.0044 | 0.0689 | 437 | 0.0249 |
| 2018 | 2018Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.3866 | 1.2370 | 4.3716 | 0.0056 | 0.1169 | 560 | 0.0349 |
| 2018 | 2018Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1113 | 0.4591 | 0.8242 | 0.0016 | 0.0336 | 152 | 0.0100 |
| 2018 | 2018Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0758 | 0.3192 | 0.2598 | 0.0004 | 0.0186 | 30.3 | 0.0068 |
| 2018 | 2018Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0709 | 0.4162 | 0.4437 | 0.0007 | 0.0341 | 60.7 | 0.0064 |
| 2018 | 2018Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.1050 | 0.7171 | 0.7125 | 0.0014 | 0.0389 | 122 | 0.0095 |
| 2018 | 2018Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0934 | 0.3046 | 0.7336 | 0.0016 | 0.0237 | 145 | 0.0084 |
| 2018 | 2018Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1186 | 0.3838 | 0.8543 | 0.0019 | 0.0297 | 192 | 0.0107 |
| 2018 | 2018Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.5386 | 1.6331 | 5.7822 | 0.0073 | 0.1543 | 741 | 0.0486 |
| 2018 | 2018Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.1050 | 0.4495 | 0.8053 | 0.0015 | 0.0324 | 141 | 0.0095 |
| 2018 | 2018Pavers25 | Pavers | 25 | 0.0226 | 0.0769 | 0.1434 | 0.0002 | 0.0057 | 18.7 | 0.0020 |
| 2018 | 2018Pavers50 | Pavers | 50 | 0.0968 | 0.3188 | 0.2539 | 0.0004 | 0.0217 | 28.0 | 0.0087 |
| 2018 | 2018Pavers120 | Pavers | 120 | 0.1030 | 0.4862 | 0.6205 | 0.0008 | 0.0506 | 69.2 | 0.0093 |
| 2018 | 2018Pavers175 | Pavers | 175 | 0.1365 | 0.7632 | 0.9644 | 0.0014 | 0.0539 | 128 | 0.0123 |
| 2018 | 2018Pavers250 | Pavers | 250 | 0.1574 | 0.5000 | 1.3162 | 0.0022 | 0.0490 | 194 | 0.0142 |
| 2018 | 2018Pavers500 | Pavers | 500 | 0.1765 | 0.6885 | 1.4189 | 0.0023 | 0.0539 | 233 | 0.0159 |
| 2018 | 2018Pavers Composite | Pavers Composite | | 0.1121 | 0.5017 | 0.6241 | 0.0009 | 0.0419 | 77.9 | 0.0101 |
| 2018 | 2018Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2018 | 2018Paving Equipment50 | Paving Equipment | 50 | 0.0821 | 0.2696 | 0.2165 | 0.0003 | 0.0185 | 23.9 | 0.0074 |
| 2018 | 2018Paving Equipment120 | Paving Equipment | 120 | 0.0805 | 0.3809 | 0.4869 | 0.0006 | 0.0400 | 54.5 | 0.0073 |
| 2018 | 2018Paving Equipment175 | Paving Equipment | 175 | 0.1062 | 0.5971 | 0.7567 | 0.0011 | 0.0424 | 101 | 0.0096 |
| 2018 | 2018Paving Equipment250 | Paving Equipment | 250 | 0.0962 | 0.3068 | 0.8236 | 0.0014 | 0.0300 | 122 | 0.0087 |
| 2018 | 2018Paving Equipment Composite | Paving Equipment Composite | | 0.0857 | 0.4136 | 0.5558 | 0.0008 | 0.0374 | 68.9 | 0.0077 |
| 2018 | 2018Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2018 | 2018Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2018 | 2018Pressure Washers15 | Pressure Washers | 15 | 0.0059 | 0.0308 | 0.0408 | 0.0001 | 0.0021 | 4.9 | 0.0005 |
| 2018 | 2018Pressure Washers25 | Pressure Washers | 25 | 0.0094 | 0.0319 | 0.0587 | 0.0001 | 0.0028 | 7.1 | 0.0008 |
| 2018 | 2018Pressure Washers50 | Pressure Washers | 50 | 0.0170 | 0.0895 | 0.1059 | 0.0002 | 0.0054 | 14.3 | 0.0015 |
| 2018 | 2018Pressure Washers120 | Pressure Washers | 120 | 0.0167 | 0.1383 | 0.1528 | 0.0003 | 0.0087 | 24.1 | 0.0015 |
| 2018 | 2018Pressure Washers Composite | Pressure Washers Composite | | 0.0101 | 0.0562 | 0.0703 | 0.0001 | 0.0036 | 9.4 | 0.0009 |
| 2018 | 2018Pumps15 | Pumps | 15 | 0.0101 | 0.0468 | 0.0625 | 0.0001 | 0.0034 | 7.4 | 0.0009 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 2018Pumps25 | Pumps | 25 | 0.0279 | 0.0871 | 0.1601 | 0.0002 | 0.0080 | 19.5 | 0.0025 |
| 2018 | 2018Pumps50 | Pumps | 50 | 0.0599 | 0.2670 | 0.2677 | 0.0004 | 0.0164 | 34.3 | 0.0054 |
| 2018 | 2018Pumps120 | Pumps | 120 | 0.0676 | 0.4767 | 0.5260 | 0.0009 | 0.0350 | 77.9 | 0.0061 |
| 2018 | 2018Pumps175 | Pumps | 175 | 0.0845 | 0.7338 | 0.7548 | 0.0016 | 0.0350 | 140 | 0.0076 |
| 2018 | 2018Pumps250 | Pumps | 250 | 0.0866 | 0.3786 | 0.9399 | 0.0023 | 0.0271 | 201 | 0.0078 |
| 2018 | 2018Pumps500 | Pumps | 500 | 0.1387 | 0.6343 | 1.4367 | 0.0034 | 0.0442 | 345 | 0.0125 |
| 2018 | 2018Pumps750 | Pumps | 750 | 0.2330 | 1.0487 | 2.4376 | 0.0057 | 0.0741 | 571 | 0.0210 |
| 2018 | 2018Pumps9999 | Pumps | 9999 | 0.7050 | 2.7434 | 9.8509 | 0.0136 | 0.2358 | 1,355 | 0.0636 |
| 2018 | 2018Pumps Composite | Pumps Composite | | 0.0458 | 0.2722 | 0.3306 | 0.0006 | 0.0189 | 49.6 | 0.0041 |
| 2018 | 2018Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2018 | 2018Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2018 | 2018Rollers50 | Rollers | 50 | 0.0662 | 0.2547 | 0.2171 | 0.0003 | 0.0158 | 26.0 | 0.0060 |
| 2018 | 2018Rollers120 | Rollers | 120 | 0.0680 | 0.3919 | 0.4411 | 0.0007 | 0.0341 | 59.0 | 0.0061 |
| 2018 | 2018Rollers175 | Rollers | 175 | 0.0897 | 0.6130 | 0.6569 | 0.0012 | 0.0356 | 108 | 0.0081 |
| 2018 | 2018Rollers250 | Rollers | 250 | 0.0934 | 0.3306 | 0.8164 | 0.0017 | 0.0274 | 153 | 0.0084 |
| 2018 | 2018Rollers500 | Rollers | 500 | 0.1262 | 0.4902 | 1.0345 | 0.0022 | 0.0365 | 219 | 0.0114 |
| 2018 | 2018Rollers Composite | Rollers Composite | | 0.0683 | 0.3885 | 0.4485 | 0.0008 | 0.0291 | 67.0 | 0.0062 |
| 2018 | 2018Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0655 | 0.3294 | 0.2744 | 0.0004 | 0.0166 | 33.9 | 0.0059 |
| 2018 | 2018Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0596 | 0.4179 | 0.3967 | 0.0007 | 0.0273 | 62.4 | 0.0054 |
| 2018 | 2018Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0911 | 0.7231 | 0.6072 | 0.0014 | 0.0322 | 125 | 0.0082 |
| 2018 | 2018Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0988 | 0.3504 | 0.7075 | 0.0019 | 0.0237 | 171 | 0.0089 |
| 2018 | 2018Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1441 | 0.5029 | 0.9468 | 0.0025 | 0.0341 | 257 | 0.0130 |
| 2018 | 2018Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0638 | 0.4499 | 0.4219 | 0.0008 | 0.0277 | 70.3 | 0.0058 |
| 2018 | 2018Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1676 | 0.8191 | 1.1443 | 0.0015 | 0.0646 | 129 | 0.0151 |
| 2018 | 2018Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1890 | 0.5640 | 1.4879 | 0.0021 | 0.0605 | 183 | 0.0171 |
| 2018 | 2018Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2531 | 1.0338 | 1.9476 | 0.0026 | 0.0787 | 265 | 0.0228 |
| 2018 | 2018Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3821 | 1.5520 | 2.9917 | 0.0040 | 0.1195 | 399 | 0.0345 |
| 2018 | 2018Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.5986 | 2.5082 | 6.0072 | 0.0060 | 0.1906 | 592 | 0.0540 |
| 2018 | 2018Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2343 | 0.8819 | 1.8194 | 0.0025 | 0.0737 | 239 | 0.0211 |
| 2018 | 2018Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2018 | 2018Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0742 | 0.3198 | 0.2591 | 0.0004 | 0.0174 | 31.1 | 0.0067 |
| 2018 | 2018Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0660 | 0.4016 | 0.4121 | 0.0007 | 0.0307 | 58.9 | 0.0060 |
| 2018 | 2018Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0888 | 0.6227 | 0.5902 | 0.0012 | 0.0323 | 106 | 0.0080 |
| 2018 | 2018Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0946 | 0.3237 | 0.7142 | 0.0017 | 0.0244 | 149 | 0.0085 |
| 2018 | 2018Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1440 | 0.5256 | 1.0103 | 0.0023 | 0.0363 | 237 | 0.0130 |
| 2018 | 2018Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2966 | 1.0762 | 2.1374 | 0.0049 | 0.0758 | 486 | 0.0268 |
| 2018 | 2018Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.3912 | 1.4170 | 4.4558 | 0.0060 | 0.1188 | 594 | 0.0353 |
| 2018 | 2018Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0861 | 0.4470 | 0.5831 | 0.0012 | 0.0300 | 109 | 0.0078 |
| 2018 | 2018Scrapers120 | Scrapers | 120 | 0.1382 | 0.6686 | 0.8165 | 0.0011 | 0.0661 | 93.9 | 0.0125 |
| 2018 | 2018Scrapers175 | Scrapers | 175 | 0.1579 | 0.8954 | 1.0712 | 0.0017 | 0.0603 | 148 | 0.0142 |
| 2018 | 2018Scrapers250 | Scrapers | 250 | 0.1704 | 0.5324 | 1.3558 | 0.0024 | 0.0501 | 209 | 0.0154 |
| 2018 | 2018Scrapers500 | Scrapers | 500 | 0.2458 | 0.9165 | 1.8678 | 0.0032 | 0.0707 | 321 | 0.0222 |
| 2018 | 2018Scrapers750 | Scrapers | 750 | 0.4267 | 1.5807 | 3.3123 | 0.0056 | 0.1238 | 555 | 0.0385 |
| 2018 | 2018Scrapers Composite | Scrapers Composite | | 0.2135 | 0.8418 | 1.6042 | 0.0027 | 0.0653 | 262 | 0.0193 |
| 2018 | 2018Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2018 | 2018Signal Boards50 | Signal Boards | 50 | 0.0649 | 0.2966 | 0.2820 | 0.0005 | 0.0172 | 36.2 | 0.0059 |
| 2018 | 2018Signal Boards120 | Signal Boards | 120 | 0.0695 | 0.4999 | 0.5256 | 0.0009 | 0.0356 | 80.2 | 0.0063 |
| 2018 | 2018Signal Boards175 | Signal Boards | 175 | 0.0955 | 0.8276 | 0.7968 | 0.0017 | 0.0385 | 155 | 0.0086 |
| 2018 | 2018Signal Boards250 | Signal Boards | 250 | 0.1151 | 0.4857 | 1.1305 | 0.0029 | 0.0337 | 255 | 0.0104 |
| 2018 | 2018Signal Boards Composite | Signal Boards Composite | | 0.0143 | 0.0916 | 0.1029 | 0.0002 | 0.0050 | 16.7 | 0.0013 |
| 2018 | 2018Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0176 | 0.0582 | 0.1081 | 0.0002 | 0.0048 | 13.8 | 0.0016 |
| 2018 | 2018Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0263 | 0.2035 | 0.1787 | 0.0003 | 0.0065 | 25.5 | 0.0024 |
| 2018 | 2018Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0248 | 0.2680 | 0.1970 | 0.0005 | 0.0095 | 42.8 | 0.0022 |
| 2018 | 2018Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0253 | 0.2146 | 0.1799 | 0.0004 | 0.0074 | 30.3 | 0.0023 |
| 2018 | 2018Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0317 | 0.1242 | 0.1139 | 0.0002 | 0.0077 | 14.1 | 0.0029 |
| 2018 | 2018Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0668 | 0.4072 | 0.4651 | 0.0007 | 0.0334 | 63.8 | 0.0060 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 2018Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0637 | 0.4677 | 0.5082 | 0.0010 | 0.0257 | 85.8 | 0.0058 |
| 2018 | 2018Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0733 | 0.2858 | 0.7013 | 0.0015 | 0.0230 | 135 | 0.0066 |
| 2018 | 2018Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1120 | 0.5047 | 1.0316 | 0.0022 | 0.0350 | 221 | 0.0101 |
| 2018 | 2018Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1782 | 0.7911 | 1.6685 | 0.0035 | 0.0558 | 347 | 0.0161 |
| 2018 | 2018Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0923 | 0.4187 | 0.8043 | 0.0017 | 0.0291 | 166 | 0.0083 |
| 2018 | 2018Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2018 | 2018Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2018 | 2018Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0522 | 0.2974 | 0.2539 | 0.0004 | 0.0137 | 31.6 | 0.0047 |
| 2018 | 2018Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0647 | 0.4983 | 0.4442 | 0.0009 | 0.0291 | 75.0 | 0.0058 |
| 2018 | 2018Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0966 | 0.8030 | 0.6280 | 0.0016 | 0.0337 | 139 | 0.0087 |
| 2018 | 2018Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0894 | 0.3218 | 0.6073 | 0.0018 | 0.0204 | 162 | 0.0081 |
| 2018 | 2018Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0681 | 0.4946 | 0.4308 | 0.0009 | 0.0251 | 78.5 | 0.0061 |
| 2018 | 2018Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1211 | 0.0002 | 0.0046 | 15.9 | 0.0017 |
| 2018 | 2018Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0497 | 0.2839 | 0.2342 | 0.0004 | 0.0121 | 30.3 | 0.0045 |
| 2018 | 2018Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0435 | 0.3426 | 0.2937 | 0.0006 | 0.0184 | 51.7 | 0.0039 |
| 2018 | 2018Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0669 | 0.5845 | 0.4264 | 0.0011 | 0.0218 | 101 | 0.0060 |
| 2018 | 2018Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0914 | 0.3483 | 0.5964 | 0.0019 | 0.0200 | 172 | 0.0082 |
| 2018 | 2018Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1788 | 0.6771 | 1.0736 | 0.0039 | 0.0385 | 345 | 0.0161 |
| 2018 | 2018Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2691 | 1.0154 | 1.6525 | 0.0058 | 0.0585 | 517 | 0.0243 |
| 2018 | 2018Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0513 | 0.3647 | 0.3331 | 0.0008 | 0.0189 | 66.8 | 0.0046 |
| 2018 | 2018Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2018 | 2018Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2018 | 2018Trenchers50 | Trenchers | 50 | 0.1142 | 0.3647 | 0.2965 | 0.0004 | 0.0255 | 32.9 | 0.0103 |
| 2018 | 2018Trenchers120 | Trenchers | 120 | 0.0959 | 0.4498 | 0.5899 | 0.0008 | 0.0477 | 64.9 | 0.0087 |
| 2018 | 2018Trenchers175 | Trenchers | 175 | 0.1505 | 0.8436 | 1.1021 | 0.0016 | 0.0607 | 144 | 0.0136 |
| 2018 | 2018Trenchers250 | Trenchers | 250 | 0.1783 | 0.5823 | 1.5446 | 0.0025 | 0.0582 | 223 | 0.0161 |
| 2018 | 2018Trenchers500 | Trenchers | 500 | 0.2312 | 0.9564 | 1.9434 | 0.0031 | 0.0740 | 311 | 0.0209 |
| 2018 | 2018Trenchers750 | Trenchers | 750 | 0.4382 | 1.7994 | 3.7533 | 0.0059 | 0.1413 | 587 | 0.0395 |
| 2018 | 2018Trenchers Composite | Trenchers Composite | | 0.1061 | 0.4368 | 0.5117 | 0.0007 | 0.0393 | 58.7 | 0.0096 |
| 2018 | 2018Welders15 | Welders | 15 | 0.0084 | 0.0392 | 0.0522 | 0.0001 | 0.0028 | 6.2 | 0.0008 |
| 2018 | 2018Welders25 | Welders | 25 | 0.0161 | 0.0504 | 0.0927 | 0.0001 | 0.0047 | 11.3 | 0.0015 |
| 2018 | 2018Welders50 | Welders | 50 | 0.0563 | 0.2339 | 0.2108 | 0.0003 | 0.0144 | 26.0 | 0.0051 |
| 2018 | 2018Welders120 | Welders | 120 | 0.0398 | 0.2540 | 0.2787 | 0.0005 | 0.0205 | 39.5 | 0.0036 |
| 2018 | 2018Welders175 | Welders | 175 | 0.0703 | 0.5400 | 0.5536 | 0.0011 | 0.0283 | 98.2 | 0.0063 |
| 2018 | 2018Welders250 | Welders | 250 | 0.0617 | 0.2348 | 0.5828 | 0.0013 | 0.0179 | 119 | 0.0056 |
| 2018 | 2018Welders500 | Welders | 500 | 0.0825 | 0.3196 | 0.7244 | 0.0016 | 0.0239 | 168 | 0.0074 |
| 2018 | 2018Welders Composite | Welders Composite | | 0.0388 | 0.1876 | 0.1941 | 0.0003 | 0.0133 | 25.6 | 0.0035 |
| 2019 | 2019Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2019 | 2019Aerial Lifts25 | Aerial Lifts | 25 | 0.0140 | 0.0463 | 0.0859 | 0.0001 | 0.0037 | 11.0 | 0.0013 |
| 2019 | 2019Aerial Lifts50 | Aerial Lifts | 50 | 0.0293 | 0.1466 | 0.1471 | 0.0003 | 0.0081 | 19.6 | 0.0026 |
| 2019 | 2019Aerial Lifts120 | Aerial Lifts | 120 | 0.0288 | 0.2304 | 0.2354 | 0.0004 | 0.0146 | 38.1 | 0.0026 |
| 2019 | 2019Aerial Lifts500 | Aerial Lifts | 500 | 0.0794 | 0.3843 | 0.7878 | 0.0021 | 0.0243 | 213 | 0.0072 |
| 2019 | 2019Aerial Lifts750 | Aerial Lifts | 750 | 0.1455 | 0.6947 | 1.4582 | 0.0039 | 0.0444 | 385 | 0.0131 |
| 2019 | 2019Aerial Lifts Composite | Aerial Lifts Composite | | 0.0288 | 0.1715 | 0.2002 | 0.0004 | 0.0104 | 34.7 | 0.0026 |
| 2019 | 2019Air Compressors15 | Air Compressors | 15 | 0.0096 | 0.0453 | 0.0593 | 0.0001 | 0.0031 | 7.2 | 0.0009 |
| 2019 | 2019Air Compressors25 | Air Compressors | 25 | 0.0201 | 0.0638 | 0.1170 | 0.0002 | 0.0057 | 14.4 | 0.0018 |
| 2019 | 2019Air Compressors50 | Air Compressors | 50 | 0.0450 | 0.2078 | 0.1784 | 0.0003 | 0.0114 | 22.3 | 0.0041 |
| 2019 | 2019Air Compressors120 | Air Compressors | 120 | 0.0450 | 0.3075 | 0.3081 | 0.0006 | 0.0218 | 47.0 | 0.0041 |
| 2019 | 2019Air Compressors175 | Air Compressors | 175 | 0.0631 | 0.4991 | 0.4511 | 0.0010 | 0.0237 | 88.5 | 0.0057 |
| 2019 | 2019Air Compressors250 | Air Compressors | 250 | 0.0707 | 0.2619 | 0.5761 | 0.0015 | 0.0183 | 131 | 0.0064 |
| 2019 | 2019Air Compressors500 | Air Compressors | 500 | 0.1203 | 0.4440 | 0.9034 | 0.0023 | 0.0310 | 232 | 0.0109 |
| 2019 | 2019Air Compressors750 | Air Compressors | 750 | 0.1867 | 0.6861 | 1.4307 | 0.0036 | 0.0485 | 358 | 0.0168 |
| 2019 | 2019Air Compressors1000 | Air Compressors | 1000 | 0.2796 | 1.0167 | 3.5067 | 0.0049 | 0.0884 | 486 | 0.0252 |
| 2019 | 2019Air Compressors Composite | Air Compressors Composite | | 0.0526 | 0.3100 | 0.3577 | 0.0007 | 0.0213 | 63.6 | 0.0047 |
| 2019 | 2019Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2019 | 2019Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0045 | 16.0 | 0.0017 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 2019Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0199 | 0.2207 | 0.1818 | 0.0004 | 0.0026 | 31.0 | 0.0018 |
| 2019 | 2019Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0293 | 0.4663 | 0.2501 | 0.0009 | 0.0054 | 77.1 | 0.0026 |
| 2019 | 2019Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0436 | 0.7542 | 0.2336 | 0.0016 | 0.0068 | 141 | 0.0039 |
| 2019 | 2019Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0502 | 0.3426 | 0.2000 | 0.0021 | 0.0054 | 188 | 0.0045 |
| 2019 | 2019Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0829 | 0.5512 | 0.3237 | 0.0031 | 0.0088 | 311 | 0.0075 |
| 2019 | 2019Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1640 | 1.0891 | 0.6432 | 0.0062 | 0.0174 | 615 | 0.0148 |
| 2019 | 2019Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2597 | 1.6436 | 4.0728 | 0.0093 | 0.0615 | 928 | 0.0234 |
| 2019 | 2019Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0506 | 0.5009 | 0.3760 | 0.0017 | 0.0078 | 165 | 0.0046 |
| 2019 | 2019Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2019 | 2019Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0227 | 0.0747 | 0.1381 | 0.0002 | 0.0061 | 17.6 | 0.0021 |
| 2019 | 2019Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0086 | 0.0416 | 0.0537 | 0.0001 | 0.0022 | 7.2 | 0.0008 |
| 2019 | 2019Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2019 | 2019Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0478 | 0.2469 | 0.2306 | 0.0004 | 0.0129 | 30.2 | 0.0043 |
| 2019 | 2019Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0579 | 0.4633 | 0.4490 | 0.0009 | 0.0288 | 74.1 | 0.0052 |
| 2019 | 2019Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0931 | 0.8661 | 0.7382 | 0.0018 | 0.0363 | 160 | 0.0084 |
| 2019 | 2019Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0536 | 0.3812 | 0.3669 | 0.0007 | 0.0225 | 58.5 | 0.0048 |
| 2019 | 2019Cranes50 | Cranes | 50 | 0.0587 | 0.2472 | 0.1955 | 0.0003 | 0.0136 | 23.2 | 0.0053 |
| 2019 | 2019Cranes120 | Cranes | 120 | 0.0589 | 0.3465 | 0.3579 | 0.0006 | 0.0272 | 50.1 | 0.0053 |
| 2019 | 2019Cranes175 | Cranes | 175 | 0.0699 | 0.4760 | 0.4536 | 0.0009 | 0.0252 | 80.3 | 0.0063 |
| 2019 | 2019Cranes250 | Cranes | 250 | 0.0745 | 0.2478 | 0.5539 | 0.0013 | 0.0190 | 112 | 0.0067 |
| 2019 | 2019Cranes500 | Cranes | 500 | 0.1143 | 0.3951 | 0.7861 | 0.0018 | 0.0286 | 180 | 0.0103 |
| 2019 | 2019Cranes750 | Cranes | 750 | 0.1934 | 0.6644 | 1.3678 | 0.0030 | 0.0490 | 303 | 0.0174 |
| 2019 | 2019Cranes9999 | Cranes | 9999 | 0.7049 | 2.2802 | 7.4207 | 0.0098 | 0.1963 | 971 | 0.0636 |
| 2019 | 2019Cranes Composite | Cranes Composite | | 0.0954 | 0.3982 | 0.7236 | 0.0014 | 0.0286 | 129 | 0.0086 |
| 2019 | 2019Crawler Tractors50 | Crawler Tractors | 50 | 0.0754 | 0.2825 | 0.2172 | 0.0003 | 0.0165 | 24.9 | 0.0068 |
| 2019 | 2019Crawler Tractors120 | Crawler Tractors | 120 | 0.0887 | 0.4652 | 0.5230 | 0.0008 | 0.0408 | 65.8 | 0.0080 |
| 2019 | 2019Crawler Tractors175 | Crawler Tractors | 175 | 0.1194 | 0.7313 | 0.7820 | 0.0014 | 0.0437 | 121 | 0.0108 |
| 2019 | 2019Crawler Tractors250 | Crawler Tractors | 250 | 0.1258 | 0.4065 | 0.9524 | 0.0019 | 0.0349 | 166 | 0.0114 |
| 2019 | 2019Crawler Tractors500 | Crawler Tractors | 500 | 0.1856 | 0.6914 | 1.3353 | 0.0025 | 0.0502 | 259 | 0.0167 |
| 2019 | 2019Crawler Tractors750 | Crawler Tractors | 750 | 0.3343 | 1.2378 | 2.4593 | 0.0047 | 0.0913 | 465 | 0.0302 |
| 2019 | 2019Crawler Tractors1000 | Crawler Tractors | 1000 | 0.5101 | 1.9264 | 5.4669 | 0.0066 | 0.1540 | 658 | 0.0460 |
| 2019 | 2019Crawler Tractors Composite | Crawler Tractors Composite | | 0.1115 | 0.5319 | 0.7346 | 0.0013 | 0.0416 | 114 | 0.0101 |
| 2019 | 2019Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0825 | 0.4118 | 0.3482 | 0.0006 | 0.0209 | 44.0 | 0.0074 |
| 2019 | 2019Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0760 | 0.5471 | 0.5185 | 0.0010 | 0.0353 | 83.1 | 0.0069 |
| 2019 | 2019Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1161 | 0.9518 | 0.7948 | 0.0019 | 0.0417 | 167 | 0.0105 |
| 2019 | 2019Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1312 | 0.4883 | 0.9900 | 0.0028 | 0.0319 | 245 | 0.0118 |
| 2019 | 2019Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1943 | 0.7148 | 1.3454 | 0.0037 | 0.0468 | 374 | 0.0175 |
| 2019 | 2019Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3049 | 1.1248 | 2.1610 | 0.0059 | 0.0737 | 589 | 0.0275 |
| 2019 | 2019Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.7943 | 2.7001 | 9.0361 | 0.0131 | 0.2254 | 1,308 | 0.0717 |
| 2019 | 2019Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1011 | 0.6280 | 0.6619 | 0.0015 | 0.0356 | 132 | 0.0091 |
| 2019 | 2019Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0583 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2019 | 2019Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0583 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2019 | 2019Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2019 | 2019Excavators50 | Excavators | 50 | 0.0422 | 0.2480 | 0.1928 | 0.0003 | 0.0094 | 25.0 | 0.0038 |
| 2019 | 2019Excavators120 | Excavators | 120 | 0.0633 | 0.4996 | 0.4050 | 0.0009 | 0.0244 | 73.6 | 0.0057 |
| 2019 | 2019Excavators175 | Excavators | 175 | 0.0759 | 0.6638 | 0.4429 | 0.0013 | 0.0227 | 112 | 0.0068 |
| 2019 | 2019Excavators250 | Excavators | 250 | 0.0878 | 0.3298 | 0.5187 | 0.0018 | 0.0176 | 159 | 0.0079 |
| 2019 | 2019Excavators500 | Excavators | 500 | 0.1266 | 0.4632 | 0.6900 | 0.0023 | 0.0250 | 234 | 0.0114 |
| 2019 | 2019Excavators750 | Excavators | 750 | 0.2100 | 0.7674 | 1.1653 | 0.0039 | 0.0417 | 387 | 0.0189 |
| 2019 | 2019Excavators Composite | Excavators Composite | | 0.0787 | 0.5140 | 0.4575 | 0.0013 | 0.0214 | 120 | 0.0071 |
| 2019 | 2019Forklifts50 | Forklifts | 50 | 0.0207 | 0.1418 | 0.1131 | 0.0002 | 0.0047 | 14.7 | 0.0019 |
| 2019 | 2019Forklifts120 | Forklifts | 120 | 0.0243 | 0.2109 | 0.1572 | 0.0004 | 0.0089 | 31.2 | 0.0022 |
| 2019 | 2019Forklifts175 | Forklifts | 175 | 0.0364 | 0.3319 | 0.2037 | 0.0006 | 0.0105 | 56.1 | 0.0033 |
| 2019 | 2019Forklifts250 | Forklifts | 250 | 0.0412 | 0.1556 | 0.2222 | 0.0009 | 0.0075 | 77.1 | 0.0037 |
| 2019 | 2019Forklifts500 | Forklifts | 500 | 0.0586 | 0.2128 | 0.2968 | 0.0011 | 0.0106 | 111 | 0.0053 |
| 2019 | 2019Forklifts Composite | Forklifts Composite | | 0.0345 | 0.2166 | 0.1924 | 0.0006 | 0.0085 | 54.4 | 0.0031 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 2019Generator Sets15 | Generator Sets | 15 | 0.0119 | 0.0641 | 0.0832 | 0.0002 | 0.0041 | 10.2 | 0.0011 |
| 2019 | 2019Generator Sets25 | Generator Sets | 25 | 0.0228 | 0.0778 | 0.1428 | 0.0002 | 0.0067 | 17.6 | 0.0021 |
| 2019 | 2019Generator Sets50 | Generator Sets | 50 | 0.0428 | 0.2206 | 0.2274 | 0.0004 | 0.0121 | 30.6 | 0.0039 |
| 2019 | 2019Generator Sets120 | Generator Sets | 120 | 0.0564 | 0.4663 | 0.4757 | 0.0009 | 0.0287 | 77.9 | 0.0051 |
| 2019 | 2019Generator Sets175 | Generator Sets | 175 | 0.0734 | 0.7323 | 0.6719 | 0.0016 | 0.0299 | 142 | 0.0066 |
| 2019 | 2019Generator Sets250 | Generator Sets | 250 | 0.0798 | 0.3883 | 0.8633 | 0.0024 | 0.0245 | 213 | 0.0072 |
| 2019 | 2019Generator Sets500 | Generator Sets | 500 | 0.1192 | 0.6027 | 1.2312 | 0.0033 | 0.0373 | 337 | 0.0108 |
| 2019 | 2019Generator Sets750 | Generator Sets | 750 | 0.1955 | 0.9730 | 2.0345 | 0.0055 | 0.0609 | 544 | 0.0176 |
| 2019 | 2019Generator Sets9999 | Generator Sets | 9999 | 0.4857 | 2.0464 | 7.1075 | 0.0105 | 0.1624 | 1,049 | 0.0438 |
| 2019 | 2019Generator Sets Composite | Generator Sets Composite | | 0.0431 | 0.2755 | 0.3483 | 0.0007 | 0.0169 | 61.0 | 0.0039 |
| 2019 | 2019Graders50 | Graders | 50 | 0.0617 | 0.2812 | 0.2228 | 0.0004 | 0.0140 | 27.5 | 0.0056 |
| 2019 | 2019Graders120 | Graders | 120 | 0.0796 | 0.5112 | 0.4929 | 0.0009 | 0.0353 | 75.0 | 0.0072 |
| 2019 | 2019Graders175 | Graders | 175 | 0.0987 | 0.7288 | 0.6283 | 0.0014 | 0.0343 | 124 | 0.0089 |
| 2019 | 2019Graders250 | Graders | 250 | 0.1055 | 0.3726 | 0.7518 | 0.0019 | 0.0257 | 172 | 0.0095 |
| 2019 | 2019Graders500 | Graders | 500 | 0.1350 | 0.5072 | 0.8940 | 0.0023 | 0.0322 | 229 | 0.0122 |
| 2019 | 2019Graders750 | Graders | 750 | 0.2873 | 1.0731 | 1.9527 | 0.0049 | 0.0694 | 486 | 0.0259 |
| 2019 | 2019Graders Composite | Graders Composite | | 0.0982 | 0.5787 | 0.6490 | 0.0015 | 0.0316 | 133 | 0.0089 |
| 2019 | 2019Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1537 | 0.6832 | 0.8910 | 0.0011 | 0.0726 | 93.7 | 0.0139 |
| 2019 | 2019Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1533 | 0.8053 | 1.0433 | 0.0015 | 0.0588 | 130 | 0.0138 |
| 2019 | 2019Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1210 | 0.3732 | 0.9525 | 0.0015 | 0.0379 | 130 | 0.0109 |
| 2019 | 2019Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.4923 | 1.9813 | 3.8379 | 0.0057 | 0.1508 | 568 | 0.0444 |
| 2019 | 2019Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.7478 | 3.1026 | 7.7459 | 0.0082 | 0.2366 | 814 | 0.0675 |
| 2019 | 2019Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1549 | 0.6634 | 1.1454 | 0.0017 | 0.0537 | 151 | 0.0140 |
| 2019 | 2019Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0904 | 0.7539 | 0.5208 | 0.0014 | 0.0270 | 125 | 0.0082 |
| 2019 | 2019Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0981 | 0.3540 | 0.5797 | 0.0019 | 0.0198 | 167 | 0.0089 |
| 2019 | 2019Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1568 | 0.5502 | 0.8530 | 0.0027 | 0.0310 | 272 | 0.0142 |
| 2019 | 2019Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2547 | 0.8921 | 1.4118 | 0.0044 | 0.0507 | 442 | 0.0230 |
| 2019 | 2019Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.3824 | 1.3098 | 4.1038 | 0.0063 | 0.1001 | 625 | 0.0345 |
| 2019 | 2019Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1524 | 0.5565 | 0.9348 | 0.0027 | 0.0318 | 260 | 0.0137 |
| 2019 | 2019Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2019 | 2019Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2019 | 2019Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0363 | 0.2299 | 0.2025 | 0.0004 | 0.0092 | 28.0 | 0.0033 |
| 2019 | 2019Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0545 | 0.5095 | 0.4176 | 0.0009 | 0.0235 | 80.9 | 0.0049 |
| 2019 | 2019Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0562 | 0.5859 | 0.3912 | 0.0012 | 0.0189 | 107 | 0.0051 |
| 2019 | 2019Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1066 | 0.4705 | 0.6985 | 0.0025 | 0.0243 | 254 | 0.0096 |
| 2019 | 2019Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0596 | 0.3522 | 0.3972 | 0.0013 | 0.0159 | 123 | 0.0054 |
| 2019 | 2019Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2019 | 2019Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2019 | 2019Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0481 | 0.2255 | 0.1804 | 0.0003 | 0.0117 | 21.7 | 0.0043 |
| 2019 | 2019Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0658 | 0.4250 | 0.4154 | 0.0007 | 0.0298 | 62.0 | 0.0059 |
| 2019 | 2019Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0772 | 0.5666 | 0.4991 | 0.0011 | 0.0269 | 95.9 | 0.0070 |
| 2019 | 2019Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0836 | 0.2830 | 0.6051 | 0.0015 | 0.0196 | 136 | 0.0075 |
| 2019 | 2019Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1584 | 0.5265 | 1.0524 | 0.0026 | 0.0368 | 265 | 0.0143 |
| 2019 | 2019Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2620 | 0.8678 | 1.7772 | 0.0044 | 0.0614 | 437 | 0.0236 |
| 2019 | 2019Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.3666 | 1.2089 | 4.1118 | 0.0056 | 0.1068 | 560 | 0.0331 |
| 2019 | 2019Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1044 | 0.4549 | 0.7419 | 0.0016 | 0.0297 | 152 | 0.0094 |
| 2019 | 2019Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0664 | 0.3109 | 0.2508 | 0.0004 | 0.0162 | 30.3 | 0.0060 |
| 2019 | 2019Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0637 | 0.4135 | 0.4056 | 0.0007 | 0.0291 | 60.7 | 0.0058 |
| 2019 | 2019Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0972 | 0.7172 | 0.6342 | 0.0014 | 0.0342 | 122 | 0.0088 |
| 2019 | 2019Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0883 | 0.3011 | 0.6467 | 0.0016 | 0.0209 | 145 | 0.0080 |
| 2019 | 2019Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1130 | 0.3786 | 0.7591 | 0.0019 | 0.0265 | 192 | 0.0102 |
| 2019 | 2019Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.5150 | 1.5956 | 5.4382 | 0.0073 | 0.1409 | 741 | 0.0465 |
| 2019 | 2019Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0983 | 0.4458 | 0.7239 | 0.0015 | 0.0286 | 141 | 0.0089 |
| 2019 | 2019Pavers25 | Pavers | 25 | 0.0226 | 0.0768 | 0.1430 | 0.0002 | 0.0056 | 18.7 | 0.0020 |
| 2019 | 2019Pavers50 | Pavers | 50 | 0.0899 | 0.3119 | 0.2467 | 0.0004 | 0.0200 | 28.0 | 0.0081 |
| 2019 | 2019Pavers120 | Pavers | 120 | 0.0969 | 0.4833 | 0.5827 | 0.0008 | 0.0466 | 69.2 | 0.0087 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 2019Pavers175 | Pavers | 175 | 0.1290 | 0.7615 | 0.8894 | 0.0014 | 0.0498 | 128 | 0.0116 |
| 2019 | 2019Pavers250 | Pavers | 250 | 0.1490 | 0.4846 | 1.2101 | 0.0022 | 0.0447 | 194 | 0.0134 |
| 2019 | 2019Pavers500 | Pavers | 500 | 0.1677 | 0.6576 | 1.3038 | 0.0023 | 0.0493 | 233 | 0.0151 |
| 2019 | 2019Pavers Composite | Pavers Composite | | 0.1053 | 0.4966 | 0.5833 | 0.0009 | 0.0386 | 77.9 | 0.0095 |
| 2019 | 2019Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2019 | 2019Paving Equipment50 | Paving Equipment | 50 | 0.0760 | 0.2634 | 0.2103 | 0.0003 | 0.0171 | 23.9 | 0.0069 |
| 2019 | 2019Paving Equipment120 | Paving Equipment | 120 | 0.0756 | 0.3785 | 0.4566 | 0.0006 | 0.0368 | 54.5 | 0.0068 |
| 2019 | 2019Paving Equipment175 | Paving Equipment | 175 | 0.1002 | 0.5958 | 0.6969 | 0.0011 | 0.0391 | 101 | 0.0090 |
| 2019 | 2019Paving Equipment250 | Paving Equipment | 250 | 0.0911 | 0.2974 | 0.7562 | 0.0014 | 0.0273 | 122 | 0.0082 |
| 2019 | 2019Paving Equipment Composite | Paving Equipment Composite | | 0.0806 | 0.4109 | 0.5172 | 0.0008 | 0.0344 | 68.9 | 0.0073 |
| 2019 | 2019Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2019 | 2019Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2019 | 2019Pressure Washers15 | Pressure Washers | 15 | 0.0057 | 0.0307 | 0.0399 | 0.0001 | 0.0019 | 4.9 | 0.0005 |
| 2019 | 2019Pressure Washers25 | Pressure Washers | 25 | 0.0092 | 0.0315 | 0.0579 | 0.0001 | 0.0027 | 7.1 | 0.0008 |
| 2019 | 2019Pressure Washers50 | Pressure Washers | 50 | 0.0146 | 0.0873 | 0.1021 | 0.0002 | 0.0047 | 14.3 | 0.0013 |
| 2019 | 2019Pressure Washers120 | Pressure Washers | 120 | 0.0145 | 0.1374 | 0.1404 | 0.0003 | 0.0075 | 24.1 | 0.0013 |
| 2019 | 2019Pressure Washers Composite | Pressure Washers Composite | | 0.0092 | 0.0554 | 0.0675 | 0.0001 | 0.0033 | 9.4 | 0.0008 |
| 2019 | 2019Pumps15 | Pumps | 15 | 0.0098 | 0.0466 | 0.0609 | 0.0001 | 0.0032 | 7.4 | 0.0009 |
| 2019 | 2019Pumps25 | Pumps | 25 | 0.0271 | 0.0860 | 0.1579 | 0.0002 | 0.0077 | 19.5 | 0.0024 |
| 2019 | 2019Pumps50 | Pumps | 50 | 0.0523 | 0.2600 | 0.2583 | 0.0004 | 0.0144 | 34.3 | 0.0047 |
| 2019 | 2019Pumps120 | Pumps | 120 | 0.0596 | 0.4736 | 0.4827 | 0.0009 | 0.0302 | 77.9 | 0.0054 |
| 2019 | 2019Pumps175 | Pumps | 175 | 0.0771 | 0.7336 | 0.6737 | 0.0016 | 0.0311 | 140 | 0.0070 |
| 2019 | 2019Pumps250 | Pumps | 250 | 0.0809 | 0.3738 | 0.8318 | 0.0023 | 0.0242 | 201 | 0.0073 |
| 2019 | 2019Pumps500 | Pumps | 500 | 0.1312 | 0.6252 | 1.2788 | 0.0034 | 0.0398 | 345 | 0.0118 |
| 2019 | 2019Pumps750 | Pumps | 750 | 0.2196 | 1.0336 | 2.1645 | 0.0057 | 0.0666 | 571 | 0.0198 |
| 2019 | 2019Pumps9999 | Pumps | 9999 | 0.6578 | 2.6790 | 9.2901 | 0.0136 | 0.2156 | 1,355 | 0.0593 |
| 2019 | 2019Pumps Composite | Pumps Composite | | 0.0412 | 0.2695 | 0.3068 | 0.0006 | 0.0166 | 49.6 | 0.0037 |
| 2019 | 2019Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2019 | 2019Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2019 | 2019Rollers50 | Rollers | 50 | 0.0600 | 0.2489 | 0.2103 | 0.0003 | 0.0143 | 26.0 | 0.0054 |
| 2019 | 2019Rollers120 | Rollers | 120 | 0.0626 | 0.3895 | 0.4094 | 0.0007 | 0.0305 | 59.0 | 0.0057 |
| 2019 | 2019Rollers175 | Rollers | 175 | 0.0834 | 0.6121 | 0.5929 | 0.0012 | 0.0320 | 108 | 0.0075 |
| 2019 | 2019Rollers250 | Rollers | 250 | 0.0886 | 0.3249 | 0.7347 | 0.0017 | 0.0248 | 153 | 0.0080 |
| 2019 | 2019Rollers500 | Rollers | 500 | 0.1205 | 0.4743 | 0.9309 | 0.0022 | 0.0331 | 219 | 0.0109 |
| 2019 | 2019Rollers Composite | Rollers Composite | | 0.0632 | 0.3859 | 0.4127 | 0.0008 | 0.0261 | 67.0 | 0.0057 |
| 2019 | 2019Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0577 | 0.3224 | 0.2646 | 0.0004 | 0.0143 | 33.9 | 0.0052 |
| 2019 | 2019Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0539 | 0.4158 | 0.3625 | 0.0007 | 0.0231 | 62.4 | 0.0049 |
| 2019 | 2019Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0844 | 0.7230 | 0.5350 | 0.0014 | 0.0281 | 125 | 0.0076 |
| 2019 | 2019Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0933 | 0.3470 | 0.6177 | 0.0019 | 0.0208 | 171 | 0.0084 |
| 2019 | 2019Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1368 | 0.4976 | 0.8334 | 0.0025 | 0.0302 | 257 | 0.0123 |
| 2019 | 2019Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0579 | 0.4479 | 0.3832 | 0.0008 | 0.0235 | 70.3 | 0.0052 |
| 2019 | 2019Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1591 | 0.8155 | 1.0684 | 0.0015 | 0.0602 | 129 | 0.0144 |
| 2019 | 2019Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1792 | 0.5451 | 1.3860 | 0.0021 | 0.0559 | 183 | 0.0162 |
| 2019 | 2019Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2407 | 0.9773 | 1.8134 | 0.0026 | 0.0728 | 265 | 0.0217 |
| 2019 | 2019Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3635 | 1.4676 | 2.7876 | 0.0040 | 0.1107 | 399 | 0.0328 |
| 2019 | 2019Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.5706 | 2.3715 | 5.7623 | 0.0060 | 0.1786 | 592 | 0.0515 |
| 2019 | 2019Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2227 | 0.8388 | 1.6948 | 0.0025 | 0.0682 | 239 | 0.0201 |
| 2019 | 2019Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2019 | 2019Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0675 | 0.3135 | 0.2504 | 0.0004 | 0.0155 | 31.1 | 0.0061 |
| 2019 | 2019Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0609 | 0.3995 | 0.3812 | 0.0007 | 0.0271 | 58.9 | 0.0055 |
| 2019 | 2019Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0825 | 0.6221 | 0.5283 | 0.0012 | 0.0287 | 106 | 0.0074 |
| 2019 | 2019Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0896 | 0.3194 | 0.6366 | 0.0017 | 0.0218 | 149 | 0.0081 |
| 2019 | 2019Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1369 | 0.5126 | 0.9018 | 0.0023 | 0.0326 | 237 | 0.0124 |
| 2019 | 2019Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2819 | 1.0497 | 1.9070 | 0.0049 | 0.0679 | 486 | 0.0254 |
| 2019 | 2019Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.3690 | 1.3618 | 4.2187 | 0.0060 | 0.1081 | 594 | 0.0333 |
| 2019 | 2019Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0805 | 0.4436 | 0.5265 | 0.0012 | 0.0266 | 109 | 0.0073 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 2019Scrapers120 | Scrapers | 120 | 0.1298 | 0.6648 | 0.7651 | 0.0011 | 0.0604 | 93.9 | 0.0117 |
| 2019 | 2019Scrapers175 | Scrapers | 175 | 0.1488 | 0.8936 | 0.9840 | 0.0017 | 0.0552 | 148 | 0.0134 |
| 2019 | 2019Scrapers250 | Scrapers | 250 | 0.1610 | 0.5173 | 1.2413 | 0.0024 | 0.0455 | 209 | 0.0145 |
| 2019 | 2019Scrapers500 | Scrapers | 500 | 0.2330 | 0.8785 | 1.7092 | 0.0032 | 0.0643 | 321 | 0.0210 |
| 2019 | 2019Scrapers750 | Scrapers | 750 | 0.4045 | 1.5154 | 3.0335 | 0.0056 | 0.1126 | 555 | 0.0365 |
| 2019 | 2019Scrapers Composite | Scrapers Composite | | 0.2021 | 0.8161 | 1.4693 | 0.0027 | 0.0594 | 262 | 0.0182 |
| 2019 | 2019Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2019 | 2019Signal Boards50 | Signal Boards | 50 | 0.0565 | 0.2890 | 0.2721 | 0.0005 | 0.0150 | 36.2 | 0.0051 |
| 2019 | 2019Signal Boards120 | Signal Boards | 120 | 0.0617 | 0.4968 | 0.4813 | 0.0009 | 0.0305 | 80.2 | 0.0056 |
| 2019 | 2019Signal Boards175 | Signal Boards | 175 | 0.0875 | 0.8275 | 0.7074 | 0.0017 | 0.0340 | 155 | 0.0079 |
| 2019 | 2019Signal Boards250 | Signal Boards | 250 | 0.1082 | 0.4806 | 0.9949 | 0.0029 | 0.0300 | 255 | 0.0098 |
| 2019 | 2019Signal Boards Composite | Signal Boards Composite | | 0.0135 | 0.0913 | 0.0967 | 0.0002 | 0.0046 | 16.7 | 0.0012 |
| 2019 | 2019Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0173 | 0.0578 | 0.1075 | 0.0002 | 0.0046 | 13.8 | 0.0016 |
| 2019 | 2019Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0245 | 0.2019 | 0.1717 | 0.0003 | 0.0053 | 25.5 | 0.0022 |
| 2019 | 2019Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0232 | 0.2676 | 0.1796 | 0.0005 | 0.0079 | 42.8 | 0.0021 |
| 2019 | 2019Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0236 | 0.2134 | 0.1700 | 0.0004 | 0.0061 | 30.3 | 0.0021 |
| 2019 | 2019Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0290 | 0.1215 | 0.1103 | 0.0002 | 0.0070 | 14.1 | 0.0026 |
| 2019 | 2019Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0617 | 0.4049 | 0.4331 | 0.0007 | 0.0302 | 63.8 | 0.0056 |
| 2019 | 2019Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0592 | 0.4670 | 0.4609 | 0.0010 | 0.0233 | 85.8 | 0.0053 |
| 2019 | 2019Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0691 | 0.2801 | 0.6343 | 0.0015 | 0.0208 | 135 | 0.0062 |
| 2019 | 2019Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1061 | 0.4875 | 0.9319 | 0.0022 | 0.0317 | 221 | 0.0096 |
| 2019 | 2019Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1686 | 0.7643 | 1.5081 | 0.0035 | 0.0507 | 347 | 0.0152 |
| 2019 | 2019Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0871 | 0.4061 | 0.7289 | 0.0017 | 0.0264 | 166 | 0.0079 |
| 2019 | 2019Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2019 | 2019Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2019 | 2019Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0474 | 0.2937 | 0.2454 | 0.0004 | 0.0117 | 31.6 | 0.0043 |
| 2019 | 2019Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0600 | 0.4973 | 0.4064 | 0.0009 | 0.0250 | 75.0 | 0.0054 |
| 2019 | 2019Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0904 | 0.8041 | 0.5513 | 0.0016 | 0.0295 | 139 | 0.0082 |
| 2019 | 2019Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0850 | 0.3207 | 0.5231 | 0.0018 | 0.0178 | 162 | 0.0077 |
| 2019 | 2019Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0632 | 0.4933 | 0.3919 | 0.0009 | 0.0217 | 78.5 | 0.0057 |
| 2019 | 2019Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1210 | 0.0002 | 0.0046 | 15.9 | 0.0017 |
| 2019 | 2019Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0448 | 0.2796 | 0.2257 | 0.0004 | 0.0103 | 30.3 | 0.0040 |
| 2019 | 2019Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0398 | 0.3413 | 0.2687 | 0.0006 | 0.0154 | 51.7 | 0.0036 |
| 2019 | 2019Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0617 | 0.5843 | 0.3708 | 0.0011 | 0.0187 | 101 | 0.0056 |
| 2019 | 2019Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0861 | 0.3462 | 0.5143 | 0.0019 | 0.0174 | 172 | 0.0078 |
| 2019 | 2019Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1694 | 0.6700 | 0.9349 | 0.0039 | 0.0337 | 345 | 0.0153 |
| 2019 | 2019Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2545 | 1.0047 | 1.4302 | 0.0058 | 0.0510 | 517 | 0.0230 |
| 2019 | 2019Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0472 | 0.3630 | 0.3019 | 0.0008 | 0.0160 | 66.8 | 0.0043 |
| 2019 | 2019Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2019 | 2019Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2019 | 2019Trenchers50 | Trenchers | 50 | 0.1064 | 0.3569 | 0.2883 | 0.0004 | 0.0236 | 32.9 | 0.0096 |
| 2019 | 2019Trenchers120 | Trenchers | 120 | 0.0903 | 0.4470 | 0.5551 | 0.0008 | 0.0442 | 64.9 | 0.0081 |
| 2019 | 2019Trenchers175 | Trenchers | 175 | 0.1424 | 0.8413 | 1.0194 | 0.0016 | 0.0563 | 144 | 0.0128 |
| 2019 | 2019Trenchers250 | Trenchers | 250 | 0.1688 | 0.5637 | 1.4248 | 0.0025 | 0.0533 | 223 | 0.0152 |
| 2019 | 2019Trenchers500 | Trenchers | 500 | 0.2199 | 0.9107 | 1.7915 | 0.0031 | 0.0680 | 311 | 0.0198 |
| 2019 | 2019Trenchers750 | Trenchers | 750 | 0.4166 | 1.7139 | 3.4627 | 0.0059 | 0.1298 | 587 | 0.0376 |
| 2019 | 2019Trenchers Composite | Trenchers Composite | | 0.0995 | 0.4317 | 0.4838 | 0.0007 | 0.0364 | 58.7 | 0.0090 |
| 2019 | 2019Welders15 | Welders | 15 | 0.0082 | 0.0390 | 0.0509 | 0.0001 | 0.0027 | 6.2 | 0.0007 |
| 2019 | 2019Welders25 | Welders | 25 | 0.0157 | 0.0498 | 0.0914 | 0.0001 | 0.0044 | 11.3 | 0.0014 |
| 2019 | 2019Welders50 | Welders | 50 | 0.0490 | 0.2271 | 0.2035 | 0.0003 | 0.0126 | 26.0 | 0.0044 |
| 2019 | 2019Welders120 | Welders | 120 | 0.0354 | 0.2522 | 0.2552 | 0.0005 | 0.0176 | 39.5 | 0.0032 |
| 2019 | 2019Welders175 | Welders | 175 | 0.0646 | 0.5398 | 0.4934 | 0.0011 | 0.0251 | 98.2 | 0.0058 |
| 2019 | 2019Welders250 | Welders | 250 | 0.0582 | 0.2319 | 0.5150 | 0.0013 | 0.0159 | 119 | 0.0053 |
| 2019 | 2019Welders500 | Welders | 500 | 0.0786 | 0.3149 | 0.6445 | 0.0016 | 0.0215 | 168 | 0.0071 |
| 2019 | 2019Welders Composite | Welders Composite | | 0.0344 | 0.1843 | 0.1832 | 0.0003 | 0.0117 | 25.6 | 0.0031 |
| 2020 | 2020Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 2020Aerial Lifts25 | Aerial Lifts | 25 | 0.0138 | 0.0459 | 0.0854 | 0.0001 | 0.0035 | 11.0 | 0.0012 |
| 2020 | 2020Aerial Lifts50 | Aerial Lifts | 50 | 0.0261 | 0.1436 | 0.1422 | 0.0003 | 0.0071 | 19.6 | 0.0024 |
| 2020 | 2020Aerial Lifts120 | Aerial Lifts | 120 | 0.0259 | 0.2292 | 0.2166 | 0.0004 | 0.0127 | 38.1 | 0.0023 |
| 2020 | 2020Aerial Lifts500 | Aerial Lifts | 500 | 0.0751 | 0.3804 | 0.6959 | 0.0021 | 0.0217 | 213 | 0.0068 |
| 2020 | 2020Aerial Lifts750 | Aerial Lifts | 750 | 0.1373 | 0.6877 | 1.2876 | 0.0039 | 0.0396 | 385 | 0.0124 |
| 2020 | 2020Aerial Lifts Composite | Aerial Lifts Composite | | 0.0261 | 0.1696 | 0.1866 | 0.0004 | 0.0092 | 34.7 | 0.0024 |
| 2020 | 2020Air Compressors15 | Air Compressors | 15 | 0.0093 | 0.0451 | 0.0579 | 0.0001 | 0.0029 | 7.2 | 0.0008 |
| 2020 | 2020Air Compressors25 | Air Compressors | 25 | 0.0196 | 0.0630 | 0.1155 | 0.0002 | 0.0054 | 14.4 | 0.0018 |
| 2020 | 2020Air Compressors50 | Air Compressors | 50 | 0.0398 | 0.2030 | 0.1725 | 0.0003 | 0.0099 | 22.3 | 0.0036 |
| 2020 | 2020Air Compressors120 | Air Compressors | 120 | 0.0408 | 0.3058 | 0.2826 | 0.0006 | 0.0188 | 47.0 | 0.0037 |
| 2020 | 2020Air Compressors175 | Air Compressors | 175 | 0.0587 | 0.4989 | 0.4013 | 0.0010 | 0.0210 | 88.5 | 0.0053 |
| 2020 | 2020Air Compressors250 | Air Compressors | 250 | 0.0669 | 0.2592 | 0.5067 | 0.0015 | 0.0163 | 131 | 0.0060 |
| 2020 | 2020Air Compressors500 | Air Compressors | 500 | 0.1146 | 0.4395 | 0.7970 | 0.0023 | 0.0276 | 232 | 0.0103 |
| 2020 | 2020Air Compressors750 | Air Compressors | 750 | 0.1777 | 0.6792 | 1.2615 | 0.0036 | 0.0432 | 358 | 0.0160 |
| 2020 | 2020Air Compressors1000 | Air Compressors | 1000 | 0.2641 | 0.9959 | 3.2946 | 0.0049 | 0.0804 | 486 | 0.0238 |
| 2020 | 2020Air Compressors Composite | Air Compressors Composite | | 0.0483 | 0.3077 | 0.3255 | 0.0007 | 0.0185 | 63.6 | 0.0044 |
| 2020 | 2020Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2020 | 2020Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2020 | 2020Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0196 | 0.2205 | 0.1756 | 0.0004 | 0.0020 | 31.0 | 0.0018 |
| 2020 | 2020Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0280 | 0.4662 | 0.2329 | 0.0009 | 0.0040 | 77.1 | 0.0025 |
| 2020 | 2020Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0402 | 0.7542 | 0.1862 | 0.0016 | 0.0051 | 141 | 0.0036 |
| 2020 | 2020Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0474 | 0.3426 | 0.1617 | 0.0021 | 0.0044 | 188 | 0.0043 |
| 2020 | 2020Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0784 | 0.5512 | 0.2622 | 0.0031 | 0.0072 | 311 | 0.0071 |
| 2020 | 2020Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1549 | 1.0891 | 0.5202 | 0.0062 | 0.0143 | 615 | 0.0140 |
| 2020 | 2020Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2442 | 1.6437 | 3.9853 | 0.0093 | 0.0530 | 928 | 0.0220 |
| 2020 | 2020Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0480 | 0.5008 | 0.3439 | 0.0017 | 0.0062 | 165 | 0.0043 |
| 2020 | 2020Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2020 | 2020Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0223 | 0.0741 | 0.1372 | 0.0002 | 0.0058 | 17.6 | 0.0020 |
| 2020 | 2020Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0086 | 0.0415 | 0.0536 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2020 | 2020Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2020 | 2020Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0424 | 0.2420 | 0.2231 | 0.0004 | 0.0113 | 30.2 | 0.0038 |
| 2020 | 2020Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0524 | 0.4613 | 0.4128 | 0.0009 | 0.0249 | 74.1 | 0.0047 |
| 2020 | 2020Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0865 | 0.8662 | 0.6554 | 0.0018 | 0.0323 | 160 | 0.0078 |
| 2020 | 2020Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0484 | 0.3783 | 0.3410 | 0.0007 | 0.0196 | 58.5 | 0.0044 |
| 2020 | 2020Cranes50 | Cranes | 50 | 0.0532 | 0.2423 | 0.1894 | 0.0003 | 0.0121 | 23.2 | 0.0048 |
| 2020 | 2020Cranes120 | Cranes | 120 | 0.0542 | 0.3446 | 0.3317 | 0.0006 | 0.0240 | 50.1 | 0.0049 |
| 2020 | 2020Cranes175 | Cranes | 175 | 0.0648 | 0.4754 | 0.4071 | 0.0009 | 0.0223 | 80.3 | 0.0058 |
| 2020 | 2020Cranes250 | Cranes | 250 | 0.0704 | 0.2440 | 0.4949 | 0.0013 | 0.0170 | 112 | 0.0064 |
| 2020 | 2020Cranes500 | Cranes | 500 | 0.1087 | 0.3839 | 0.7047 | 0.0018 | 0.0257 | 180 | 0.0098 |
| 2020 | 2020Cranes750 | Cranes | 750 | 0.1837 | 0.6455 | 1.2225 | 0.0030 | 0.0439 | 303 | 0.0166 |
| 2020 | 2020Cranes9999 | Cranes | 9999 | 0.6702 | 2.1934 | 7.0436 | 0.0098 | 0.1797 | 971 | 0.0605 |
| 2020 | 2020Cranes Composite | Cranes Composite | | 0.0898 | 0.3917 | 0.6610 | 0.0014 | 0.0256 | 129 | 0.0081 |
| 2020 | 2020Crawler Tractors50 | Crawler Tractors | 50 | 0.0699 | 0.2771 | 0.2107 | 0.0003 | 0.0150 | 24.9 | 0.0063 |
| 2020 | 2020Crawler Tractors120 | Crawler Tractors | 120 | 0.0831 | 0.4628 | 0.4896 | 0.0008 | 0.0371 | 65.8 | 0.0075 |
| 2020 | 2020Crawler Tractors175 | Crawler Tractors | 175 | 0.1123 | 0.7302 | 0.7150 | 0.0014 | 0.0398 | 121 | 0.0101 |
| 2020 | 2020Crawler Tractors250 | Crawler Tractors | 250 | 0.1188 | 0.3966 | 0.8681 | 0.0019 | 0.0315 | 166 | 0.0107 |
| 2020 | 2020Crawler Tractors500 | Crawler Tractors | 500 | 0.1759 | 0.6665 | 1.2170 | 0.0025 | 0.0455 | 259 | 0.0159 |
| 2020 | 2020Crawler Tractors750 | Crawler Tractors | 750 | 0.3168 | 1.1935 | 2.2429 | 0.0047 | 0.0828 | 465 | 0.0286 |
| 2020 | 2020Crawler Tractors1000 | Crawler Tractors | 1000 | 0.4836 | 1.8458 | 5.2162 | 0.0066 | 0.1425 | 658 | 0.0436 |
| 2020 | 2020Crawler Tractors Composite | Crawler Tractors Composite | | 0.1049 | 0.5260 | 0.6772 | 0.0013 | 0.0378 | 114 | 0.0095 |
| 2020 | 2020Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0734 | 0.4036 | 0.3367 | 0.0006 | 0.0181 | 44.0 | 0.0066 |
| 2020 | 2020Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0692 | 0.5446 | 0.4754 | 0.0010 | 0.0302 | 83.1 | 0.0062 |
| 2020 | 2020Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1083 | 0.9519 | 0.7042 | 0.0019 | 0.0368 | 167 | 0.0098 |
| 2020 | 2020Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1245 | 0.4844 | 0.8670 | 0.0028 | 0.0282 | 245 | 0.0112 |
| 2020 | 2020Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1852 | 0.7092 | 1.1829 | 0.0037 | 0.0416 | 374 | 0.0167 |
| 2020 | 2020Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2912 | 1.1167 | 1.9026 | 0.0059 | 0.0655 | 589 | 0.0263 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 2020Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.7584 | 2.6528 | 8.5119 | 0.0131 | 0.2049 | 1,308 | 0.0684 |
| 2020 | 2020Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0934 | 0.6247 | 0.5983 | 0.0015 | 0.0310 | 132 | 0.0084 |
| 2020 | 2020Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0582 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2020 | 2020Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0582 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2020 | 2020Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2020 | 2020Excavators50 | Excavators | 50 | 0.0384 | 0.2446 | 0.1862 | 0.0003 | 0.0080 | 25.0 | 0.0035 |
| 2020 | 2020Excavators120 | Excavators | 120 | 0.0583 | 0.4979 | 0.3717 | 0.0009 | 0.0206 | 73.6 | 0.0053 |
| 2020 | 2020Excavators175 | Excavators | 175 | 0.0703 | 0.6637 | 0.3868 | 0.0013 | 0.0195 | 112 | 0.0063 |
| 2020 | 2020Excavators250 | Excavators | 250 | 0.0828 | 0.3276 | 0.4493 | 0.0018 | 0.0154 | 159 | 0.0075 |
| 2020 | 2020Excavators500 | Excavators | 500 | 0.1198 | 0.4591 | 0.6028 | 0.0023 | 0.0219 | 234 | 0.0108 |
| 2020 | 2020Excavators750 | Excavators | 750 | 0.1987 | 0.7606 | 1.0153 | 0.0039 | 0.0365 | 387 | 0.0179 |
| 2020 | 2020Excavators Composite | Excavators Composite | | 0.0733 | 0.5124 | 0.4042 | 0.0013 | 0.0184 | 120 | 0.0066 |
| 2020 | 2020Forklifts50 | Forklifts | 50 | 0.0191 | 0.1400 | 0.1084 | 0.0002 | 0.0039 | 14.7 | 0.0017 |
| 2020 | 2020Forklifts120 | Forklifts | 120 | 0.0225 | 0.2102 | 0.1443 | 0.0004 | 0.0074 | 31.2 | 0.0020 |
| 2020 | 2020Forklifts175 | Forklifts | 175 | 0.0336 | 0.3315 | 0.1772 | 0.0006 | 0.0087 | 56.1 | 0.0030 |
| 2020 | 2020Forklifts250 | Forklifts | 250 | 0.0385 | 0.1554 | 0.1887 | 0.0009 | 0.0062 | 77.1 | 0.0035 |
| 2020 | 2020Forklifts500 | Forklifts | 500 | 0.0548 | 0.2126 | 0.2528 | 0.0011 | 0.0088 | 111 | 0.0049 |
| 2020 | 2020Forklifts Composite | Forklifts Composite | | 0.0320 | 0.2160 | 0.1691 | 0.0006 | 0.0070 | 54.4 | 0.0029 |
| 2020 | 2020Generator Sets15 | Generator Sets | 15 | 0.0116 | 0.0638 | 0.0814 | 0.0002 | 0.0038 | 10.2 | 0.0011 |
| 2020 | 2020Generator Sets25 | Generator Sets | 25 | 0.0224 | 0.0769 | 0.1410 | 0.0002 | 0.0064 | 17.6 | 0.0020 |
| 2020 | 2020Generator Sets50 | Generator Sets | 50 | 0.0379 | 0.2161 | 0.2199 | 0.0004 | 0.0106 | 30.6 | 0.0034 |
| 2020 | 2020Generator Sets120 | Generator Sets | 120 | 0.0506 | 0.4641 | 0.4378 | 0.0009 | 0.0250 | 77.9 | 0.0046 |
| 2020 | 2020Generator Sets175 | Generator Sets | 175 | 0.0676 | 0.7323 | 0.5990 | 0.0016 | 0.0266 | 142 | 0.0061 |
| 2020 | 2020Generator Sets250 | Generator Sets | 250 | 0.0747 | 0.3844 | 0.7614 | 0.0024 | 0.0218 | 213 | 0.0067 |
| 2020 | 2020Generator Sets500 | Generator Sets | 500 | 0.1125 | 0.5968 | 1.0874 | 0.0033 | 0.0333 | 337 | 0.0102 |
| 2020 | 2020Generator Sets750 | Generator Sets | 750 | 0.1842 | 0.9634 | 1.7962 | 0.0055 | 0.0544 | 544 | 0.0166 |
| 2020 | 2020Generator Sets9999 | Generator Sets | 9999 | 0.4502 | 2.0059 | 6.6947 | 0.0105 | 0.1476 | 1,049 | 0.0406 |
| 2020 | 2020Generator Sets Composite | Generator Sets Composite | | 0.0395 | 0.2732 | 0.3232 | 0.0007 | 0.0150 | 61.0 | 0.0036 |
| 2020 | 2020Graders50 | Graders | 50 | 0.0563 | 0.2762 | 0.2156 | 0.0004 | 0.0124 | 27.5 | 0.0051 |
| 2020 | 2020Graders120 | Graders | 120 | 0.0738 | 0.5090 | 0.4568 | 0.0009 | 0.0311 | 75.0 | 0.0067 |
| 2020 | 2020Graders175 | Graders | 175 | 0.0918 | 0.7282 | 0.5622 | 0.0014 | 0.0303 | 124 | 0.0083 |
| 2020 | 2020Graders250 | Graders | 250 | 0.0999 | 0.3683 | 0.6701 | 0.0019 | 0.0230 | 172 | 0.0090 |
| 2020 | 2020Graders500 | Graders | 500 | 0.1284 | 0.4966 | 0.7982 | 0.0023 | 0.0288 | 229 | 0.0116 |
| 2020 | 2020Graders750 | Graders | 750 | 0.2731 | 1.0508 | 1.7425 | 0.0049 | 0.0621 | 486 | 0.0246 |
| 2020 | 2020Graders Composite | Graders Composite | | 0.0919 | 0.5765 | 0.5823 | 0.0015 | 0.0280 | 133 | 0.0083 |
| 2020 | 2020Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1455 | 0.6789 | 0.8421 | 0.0011 | 0.0674 | 93.7 | 0.0131 |
| 2020 | 2020Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1455 | 0.8025 | 0.9712 | 0.0015 | 0.0547 | 130 | 0.0131 |
| 2020 | 2020Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1147 | 0.3614 | 0.8843 | 0.0015 | 0.0348 | 130 | 0.0103 |
| 2020 | 2020Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.4683 | 1.8825 | 3.5643 | 0.0057 | 0.1391 | 568 | 0.0423 |
| 2020 | 2020Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.7129 | 2.9445 | 7.4279 | 0.0082 | 0.2214 | 814 | 0.0643 |
| 2020 | 2020Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1470 | 0.6517 | 1.0657 | 0.0017 | 0.0497 | 151 | 0.0133 |
| 2020 | 2020Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0837 | 0.7538 | 0.4564 | 0.0014 | 0.0234 | 125 | 0.0076 |
| 2020 | 2020Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0927 | 0.3514 | 0.5042 | 0.0019 | 0.0173 | 167 | 0.0084 |
| 2020 | 2020Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1488 | 0.5446 | 0.7481 | 0.0027 | 0.0273 | 272 | 0.0134 |
| 2020 | 2020Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2416 | 0.8831 | 1.2347 | 0.0044 | 0.0446 | 442 | 0.0218 |
| 2020 | 2020Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.3613 | 1.2913 | 3.8920 | 0.0063 | 0.0903 | 625 | 0.0326 |
| 2020 | 2020Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1443 | 0.5514 | 0.8306 | 0.0027 | 0.0280 | 260 | 0.0130 |
| 2020 | 2020Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2020 | 2020Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2020 | 2020Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0328 | 0.2267 | 0.1956 | 0.0004 | 0.0078 | 28.0 | 0.0030 |
| 2020 | 2020Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0501 | 0.5080 | 0.3835 | 0.0009 | 0.0199 | 80.9 | 0.0045 |
| 2020 | 2020Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0524 | 0.5859 | 0.3414 | 0.0012 | 0.0164 | 107 | 0.0047 |
| 2020 | 2020Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1012 | 0.4676 | 0.6065 | 0.0025 | 0.0212 | 254 | 0.0091 |
| 2020 | 2020Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0563 | 0.3508 | 0.3519 | 0.0013 | 0.0139 | 122 | 0.0051 |
| 2020 | 2020Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2020 | 2020Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 2020Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0431 | 0.2211 | 0.1744 | 0.0003 | 0.0101 | 21.7 | 0.0039 |
| 2020 | 2020Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0602 | 0.4232 | 0.3810 | 0.0007 | 0.0256 | 62.0 | 0.0054 |
| 2020 | 2020Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0721 | 0.5668 | 0.4439 | 0.0011 | 0.0237 | 95.9 | 0.0065 |
| 2020 | 2020Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0791 | 0.2804 | 0.5318 | 0.0015 | 0.0173 | 136 | 0.0071 |
| 2020 | 2020Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1506 | 0.5217 | 0.9276 | 0.0026 | 0.0326 | 265 | 0.0136 |
| 2020 | 2020Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2490 | 0.8599 | 1.5657 | 0.0044 | 0.0543 | 437 | 0.0225 |
| 2020 | 2020Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.3467 | 1.1855 | 3.8628 | 0.0056 | 0.0969 | 560 | 0.0313 |
| 2020 | 2020Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0983 | 0.4517 | 0.6661 | 0.0016 | 0.0262 | 152 | 0.0089 |
| 2020 | 2020Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0595 | 0.3049 | 0.2425 | 0.0004 | 0.0141 | 30.3 | 0.0054 |
| 2020 | 2020Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0583 | 0.4117 | 0.3720 | 0.0007 | 0.0250 | 60.7 | 0.0053 |
| 2020 | 2020Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0907 | 0.7176 | 0.5642 | 0.0014 | 0.0301 | 122 | 0.0082 |
| 2020 | 2020Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0836 | 0.2984 | 0.5684 | 0.0016 | 0.0185 | 145 | 0.0075 |
| 2020 | 2020Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1074 | 0.3752 | 0.6692 | 0.0019 | 0.0235 | 192 | 0.0097 |
| 2020 | 2020Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.4910 | 1.5647 | 5.1082 | 0.0073 | 0.1280 | 741 | 0.0443 |
| 2020 | 2020Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0924 | 0.4429 | 0.6500 | 0.0015 | 0.0252 | 141 | 0.0083 |
| 2020 | 2020Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1427 | 0.0002 | 0.0055 | 18.7 | 0.0020 |
| 2020 | 2020Pavers50 | Pavers | 50 | 0.0834 | 0.3055 | 0.2398 | 0.0004 | 0.0184 | 28.0 | 0.0075 |
| 2020 | 2020Pavers120 | Pavers | 120 | 0.0910 | 0.4805 | 0.5471 | 0.0008 | 0.0428 | 69.2 | 0.0082 |
| 2020 | 2020Pavers175 | Pavers | 175 | 0.1217 | 0.7599 | 0.8187 | 0.0014 | 0.0459 | 128 | 0.0110 |
| 2020 | 2020Pavers250 | Pavers | 250 | 0.1411 | 0.4713 | 1.1106 | 0.0022 | 0.0407 | 194 | 0.0127 |
| 2020 | 2020Pavers500 | Pavers | 500 | 0.1595 | 0.6305 | 1.1959 | 0.0023 | 0.0450 | 233 | 0.0144 |
| 2020 | 2020Pavers Composite | Pavers Composite | | 0.0989 | 0.4920 | 0.5450 | 0.0009 | 0.0355 | 77.9 | 0.0089 |
| 2020 | 2020Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2020 | 2020Paving Equipment50 | Paving Equipment | 50 | 0.0702 | 0.2577 | 0.2043 | 0.0003 | 0.0157 | 23.9 | 0.0063 |
| 2020 | 2020Paving Equipment120 | Paving Equipment | 120 | 0.0708 | 0.3762 | 0.4280 | 0.0006 | 0.0337 | 54.5 | 0.0064 |
| 2020 | 2020Paving Equipment175 | Paving Equipment | 175 | 0.0944 | 0.5945 | 0.6403 | 0.0011 | 0.0360 | 101 | 0.0085 |
| 2020 | 2020Paving Equipment250 | Paving Equipment | 250 | 0.0864 | 0.2894 | 0.6928 | 0.0014 | 0.0249 | 122 | 0.0078 |
| 2020 | 2020Paving Equipment Composite | Paving Equipment Composite | | 0.0757 | 0.4084 | 0.4807 | 0.0008 | 0.0315 | 68.9 | 0.0068 |
| 2020 | 2020Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2020 | 2020Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2020 | 2020Pressure Washers15 | Pressure Washers | 15 | 0.0056 | 0.0305 | 0.0390 | 0.0001 | 0.0018 | 4.9 | 0.0005 |
| 2020 | 2020Pressure Washers25 | Pressure Washers | 25 | 0.0091 | 0.0312 | 0.0572 | 0.0001 | 0.0026 | 7.1 | 0.0008 |
| 2020 | 2020Pressure Washers50 | Pressure Washers | 50 | 0.0128 | 0.0856 | 0.0986 | 0.0002 | 0.0041 | 14.3 | 0.0012 |
| 2020 | 2020Pressure Washers120 | Pressure Washers | 120 | 0.0128 | 0.1367 | 0.1293 | 0.0003 | 0.0065 | 24.1 | 0.0012 |
| 2020 | 2020Pressure Washers Composite | Pressure Washers Composite | | 0.0085 | 0.0549 | 0.0650 | 0.0001 | 0.0030 | 9.4 | 0.0008 |
| 2020 | 2020Pumps15 | Pumps | 15 | 0.0096 | 0.0464 | 0.0595 | 0.0001 | 0.0030 | 7.4 | 0.0009 |
| 2020 | 2020Pumps25 | Pumps | 25 | 0.0265 | 0.0850 | 0.1558 | 0.0002 | 0.0073 | 19.5 | 0.0024 |
| 2020 | 2020Pumps50 | Pumps | 50 | 0.0465 | 0.2546 | 0.2497 | 0.0004 | 0.0126 | 34.3 | 0.0042 |
| 2020 | 2020Pumps120 | Pumps | 120 | 0.0537 | 0.4713 | 0.4442 | 0.0009 | 0.0263 | 77.9 | 0.0048 |
| 2020 | 2020Pumps175 | Pumps | 175 | 0.0712 | 0.7336 | 0.6007 | 0.0016 | 0.0277 | 140 | 0.0064 |
| 2020 | 2020Pumps250 | Pumps | 250 | 0.0760 | 0.3700 | 0.7338 | 0.0023 | 0.0215 | 201 | 0.0069 |
| 2020 | 2020Pumps500 | Pumps | 500 | 0.1241 | 0.6189 | 1.1297 | 0.0034 | 0.0355 | 345 | 0.0112 |
| 2020 | 2020Pumps750 | Pumps | 750 | 0.2075 | 1.0232 | 1.9114 | 0.0057 | 0.0594 | 571 | 0.0187 |
| 2020 | 2020Pumps9999 | Pumps | 9999 | 0.6127 | 2.6255 | 8.7489 | 0.0136 | 0.1961 | 1,355 | 0.0553 |
| 2020 | 2020Pumps Composite | Pumps Composite | | 0.0376 | 0.2674 | 0.2854 | 0.0006 | 0.0147 | 49.6 | 0.0034 |
| 2020 | 2020Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2020 | 2020Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2020 | 2020Rollers50 | Rollers | 50 | 0.0543 | 0.2436 | 0.2039 | 0.0003 | 0.0128 | 26.0 | 0.0049 |
| 2020 | 2020Rollers120 | Rollers | 120 | 0.0576 | 0.3873 | 0.3799 | 0.0007 | 0.0270 | 59.0 | 0.0052 |
| 2020 | 2020Rollers175 | Rollers | 175 | 0.0774 | 0.6114 | 0.5331 | 0.0012 | 0.0286 | 108 | 0.0070 |
| 2020 | 2020Rollers250 | Rollers | 250 | 0.0842 | 0.3201 | 0.6581 | 0.0017 | 0.0223 | 153 | 0.0076 |
| 2020 | 2020Rollers500 | Rollers | 500 | 0.1151 | 0.4607 | 0.8354 | 0.0022 | 0.0299 | 219 | 0.0104 |
| 2020 | 2020Rollers Composite | Rollers Composite | | 0.0584 | 0.3837 | 0.3793 | 0.0008 | 0.0232 | 67.0 | 0.0053 |
| 2020 | 2020Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0520 | 0.3171 | 0.2556 | 0.0004 | 0.0122 | 33.9 | 0.0047 |
| 2020 | 2020Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0495 | 0.4142 | 0.3326 | 0.0007 | 0.0197 | 62.4 | 0.0045 |
| 2020 | 2020Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0788 | 0.7229 | 0.4710 | 0.0014 | 0.0245 | 125 | 0.0071 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 2020Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0881 | 0.3442 | 0.5378 | 0.0019 | 0.0182 | 171 | 0.0079 |
| 2020 | 2020Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1296 | 0.4936 | 0.7287 | 0.0025 | 0.0265 | 257 | 0.0117 |
| 2020 | 2020Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0533 | 0.4464 | 0.3494 | 0.0008 | 0.0201 | 70.3 | 0.0048 |
| 2020 | 2020Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1509 | 0.8124 | 0.9962 | 0.0015 | 0.0561 | 129 | 0.0136 |
| 2020 | 2020Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1701 | 0.5279 | 1.2898 | 0.0021 | 0.0516 | 183 | 0.0153 |
| 2020 | 2020Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2291 | 0.9276 | 1.6868 | 0.0026 | 0.0673 | 265 | 0.0207 |
| 2020 | 2020Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3461 | 1.3934 | 2.5948 | 0.0040 | 0.1024 | 399 | 0.0312 |
| 2020 | 2020Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.5438 | 2.2500 | 5.5311 | 0.0060 | 0.1672 | 592 | 0.0491 |
| 2020 | 2020Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2118 | 0.8006 | 1.5773 | 0.0025 | 0.0630 | 239 | 0.0191 |
| 2020 | 2020Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2020 | 2020Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0615 | 0.3080 | 0.2424 | 0.0004 | 0.0137 | 31.1 | 0.0055 |
| 2020 | 2020Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0563 | 0.3977 | 0.3529 | 0.0007 | 0.0237 | 58.9 | 0.0051 |
| 2020 | 2020Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0767 | 0.6215 | 0.4713 | 0.0012 | 0.0253 | 106 | 0.0069 |
| 2020 | 2020Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0848 | 0.3159 | 0.5655 | 0.0017 | 0.0194 | 149 | 0.0077 |
| 2020 | 2020Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1302 | 0.5016 | 0.8032 | 0.0023 | 0.0291 | 237 | 0.0118 |
| 2020 | 2020Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2680 | 1.0271 | 1.6958 | 0.0049 | 0.0606 | 486 | 0.0242 |
| 2020 | 2020Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.3484 | 1.3166 | 4.0040 | 0.0060 | 0.0983 | 594 | 0.0314 |
| 2020 | 2020Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0753 | 0.4406 | 0.4747 | 0.0012 | 0.0235 | 109 | 0.0068 |
| 2020 | 2020Scrapers120 | Scrapers | 120 | 0.1218 | 0.6612 | 0.7170 | 0.0011 | 0.0551 | 93.9 | 0.0110 |
| 2020 | 2020Scrapers175 | Scrapers | 175 | 0.1400 | 0.8921 | 0.9020 | 0.0017 | 0.0505 | 148 | 0.0126 |
| 2020 | 2020Scrapers250 | Scrapers | 250 | 0.1522 | 0.5044 | 1.1344 | 0.0024 | 0.0412 | 209 | 0.0137 |
| 2020 | 2020Scrapers500 | Scrapers | 500 | 0.2211 | 0.8455 | 1.5615 | 0.0032 | 0.0584 | 321 | 0.0200 |
| 2020 | 2020Scrapers750 | Scrapers | 750 | 0.3839 | 1.4588 | 2.7734 | 0.0056 | 0.1024 | 555 | 0.0346 |
| 2020 | 2020Scrapers Composite | Scrapers Composite | | 0.1914 | 0.7938 | 1.3434 | 0.0027 | 0.0541 | 262 | 0.0173 |
| 2020 | 2020Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2020 | 2020Signal Boards50 | Signal Boards | 50 | 0.0502 | 0.2833 | 0.2631 | 0.0005 | 0.0131 | 36.2 | 0.0045 |
| 2020 | 2020Signal Boards120 | Signal Boards | 120 | 0.0558 | 0.4946 | 0.4424 | 0.0009 | 0.0264 | 80.2 | 0.0050 |
| 2020 | 2020Signal Boards175 | Signal Boards | 175 | 0.0811 | 0.8276 | 0.6279 | 0.0017 | 0.0302 | 155 | 0.0073 |
| 2020 | 2020Signal Boards250 | Signal Boards | 250 | 0.1022 | 0.4765 | 0.8737 | 0.0029 | 0.0266 | 255 | 0.0092 |
| 2020 | 2020Signal Boards Composite | Signal Boards Composite | | 0.0129 | 0.0912 | 0.0912 | 0.0002 | 0.0042 | 16.7 | 0.0012 |
| 2020 | 2020Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0171 | 0.0575 | 0.1070 | 0.0002 | 0.0044 | 13.8 | 0.0015 |
| 2020 | 2020Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0230 | 0.2006 | 0.1655 | 0.0003 | 0.0043 | 25.5 | 0.0021 |
| 2020 | 2020Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0218 | 0.2673 | 0.1647 | 0.0005 | 0.0064 | 42.8 | 0.0020 |
| 2020 | 2020Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0222 | 0.2125 | 0.1614 | 0.0004 | 0.0050 | 30.3 | 0.0020 |
| 2020 | 2020Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0265 | 0.1191 | 0.1069 | 0.0002 | 0.0063 | 14.1 | 0.0024 |
| 2020 | 2020Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0570 | 0.4028 | 0.4035 | 0.0007 | 0.0271 | 63.8 | 0.0051 |
| 2020 | 2020Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0550 | 0.4663 | 0.4168 | 0.0010 | 0.0210 | 85.8 | 0.0050 |
| 2020 | 2020Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0652 | 0.2754 | 0.5719 | 0.0015 | 0.0188 | 135 | 0.0059 |
| 2020 | 2020Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1008 | 0.4728 | 0.8400 | 0.0022 | 0.0288 | 221 | 0.0091 |
| 2020 | 2020Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1599 | 0.7413 | 1.3593 | 0.0035 | 0.0459 | 347 | 0.0144 |
| 2020 | 2020Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0823 | 0.3953 | 0.6593 | 0.0017 | 0.0239 | 166 | 0.0074 |
| 2020 | 2020Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2020 | 2020Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2020 | 2020Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0430 | 0.2898 | 0.2365 | 0.0004 | 0.0098 | 31.6 | 0.0039 |
| 2020 | 2020Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0555 | 0.4959 | 0.3694 | 0.0009 | 0.0210 | 75.0 | 0.0050 |
| 2020 | 2020Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0845 | 0.8043 | 0.4869 | 0.0016 | 0.0253 | 139 | 0.0076 |
| 2020 | 2020Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0803 | 0.3198 | 0.4530 | 0.0018 | 0.0152 | 162 | 0.0072 |
| 2020 | 2020Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0584 | 0.4916 | 0.3563 | 0.0009 | 0.0183 | 78.5 | 0.0053 |
| 2020 | 2020Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0046 | 15.9 | 0.0017 |
| 2020 | 2020Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0407 | 0.2760 | 0.2179 | 0.0004 | 0.0087 | 30.3 | 0.0037 |
| 2020 | 2020Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0366 | 0.3402 | 0.2466 | 0.0006 | 0.0129 | 51.7 | 0.0033 |
| 2020 | 2020Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0571 | 0.5841 | 0.3220 | 0.0011 | 0.0159 | 101 | 0.0052 |
| 2020 | 2020Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0813 | 0.3445 | 0.4427 | 0.0019 | 0.0151 | 172 | 0.0073 |
| 2020 | 2020Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1606 | 0.6642 | 0.8132 | 0.0039 | 0.0294 | 345 | 0.0145 |
| 2020 | 2020Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2409 | 0.9959 | 1.2387 | 0.0058 | 0.0443 | 517 | 0.0217 |
| 2020 | 2020Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0436 | 0.3616 | 0.2744 | 0.0008 | 0.0134 | 66.8 | 0.0039 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 2020Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2020 | 2020Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2020 | 2020Trenchers50 | Trenchers | 50 | 0.0990 | 0.3495 | 0.2804 | 0.0004 | 0.0218 | 32.9 | 0.0089 |
| 2020 | 2020Trenchers120 | Trenchers | 120 | 0.0849 | 0.4443 | 0.5223 | 0.0008 | 0.0408 | 64.9 | 0.0077 |
| 2020 | 2020Trenchers175 | Trenchers | 175 | 0.1346 | 0.8393 | 0.9412 | 0.0016 | 0.0521 | 144 | 0.0121 |
| 2020 | 2020Trenchers250 | Trenchers | 250 | 0.1600 | 0.5472 | 1.3120 | 0.0025 | 0.0487 | 223 | 0.0144 |
| 2020 | 2020Trenchers500 | Trenchers | 500 | 0.2092 | 0.8710 | 1.6487 | 0.0031 | 0.0623 | 311 | 0.0189 |
| 2020 | 2020Trenchers750 | Trenchers | 750 | 0.3964 | 1.6395 | 3.1894 | 0.0059 | 0.1191 | 587 | 0.0358 |
| 2020 | 2020Trenchers Composite | Trenchers Composite | | 0.0933 | 0.4270 | 0.4575 | 0.0007 | 0.0336 | 58.7 | 0.0084 |
| 2020 | 2020Welders15 | Welders | 15 | 0.0080 | 0.0388 | 0.0498 | 0.0001 | 0.0025 | 6.2 | 0.0007 |
| 2020 | 2020Welders25 | Welders | 25 | 0.0153 | 0.0492 | 0.0903 | 0.0001 | 0.0042 | 11.3 | 0.0014 |
| 2020 | 2020Welders50 | Welders | 50 | 0.0435 | 0.2219 | 0.1968 | 0.0003 | 0.0110 | 26.0 | 0.0039 |
| 2020 | 2020Welders120 | Welders | 120 | 0.0321 | 0.2508 | 0.2344 | 0.0005 | 0.0153 | 39.5 | 0.0029 |
| 2020 | 2020Welders175 | Welders | 175 | 0.0600 | 0.5396 | 0.4393 | 0.0011 | 0.0223 | 98.2 | 0.0054 |
| 2020 | 2020Welders250 | Welders | 250 | 0.0551 | 0.2294 | 0.4536 | 0.0013 | 0.0142 | 119 | 0.0050 |
| 2020 | 2020Welders500 | Welders | 500 | 0.0748 | 0.3117 | 0.5690 | 0.0016 | 0.0192 | 168 | 0.0067 |
| 2020 | 2020Welders Composite | Welders Composite | | 0.0310 | 0.1816 | 0.1735 | 0.0003 | 0.0102 | 25.6 | 0.0028 |
| 2021 | 2021Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2021 | 2021Aerial Lifts25 | Aerial Lifts | 25 | 0.0136 | 0.0456 | 0.0849 | 0.0001 | 0.0034 | 11.0 | 0.0012 |
| 2021 | 2021Aerial Lifts50 | Aerial Lifts | 50 | 0.0233 | 0.1405 | 0.1369 | 0.0003 | 0.0061 | 19.6 | 0.0021 |
| 2021 | 2021Aerial Lifts120 | Aerial Lifts | 120 | 0.0234 | 0.2280 | 0.1978 | 0.0004 | 0.0110 | 38.1 | 0.0021 |
| 2021 | 2021Aerial Lifts500 | Aerial Lifts | 500 | 0.0703 | 0.3769 | 0.6021 | 0.0021 | 0.0189 | 213 | 0.0063 |
| 2021 | 2021Aerial Lifts750 | Aerial Lifts | 750 | 0.1283 | 0.6813 | 1.1121 | 0.0039 | 0.0346 | 385 | 0.0116 |
| 2021 | 2021Aerial Lifts Composite | Aerial Lifts Composite | | 0.0238 | 0.1677 | 0.1726 | 0.0004 | 0.0080 | 34.7 | 0.0021 |
| 2021 | 2021Air Compressors15 | Air Compressors | 15 | 0.0092 | 0.0449 | 0.0569 | 0.0001 | 0.0027 | 7.2 | 0.0008 |
| 2021 | 2021Air Compressors25 | Air Compressors | 25 | 0.0192 | 0.0623 | 0.1145 | 0.0002 | 0.0052 | 14.4 | 0.0017 |
| 2021 | 2021Air Compressors50 | Air Compressors | 50 | 0.0355 | 0.1979 | 0.1659 | 0.0003 | 0.0085 | 22.3 | 0.0032 |
| 2021 | 2021Air Compressors120 | Air Compressors | 120 | 0.0371 | 0.3037 | 0.2570 | 0.0006 | 0.0160 | 47.0 | 0.0033 |
| 2021 | 2021Air Compressors175 | Air Compressors | 175 | 0.0541 | 0.4975 | 0.3498 | 0.0010 | 0.0183 | 88.5 | 0.0049 |
| 2021 | 2021Air Compressors250 | Air Compressors | 250 | 0.0626 | 0.2564 | 0.4359 | 0.0015 | 0.0141 | 131 | 0.0056 |
| 2021 | 2021Air Compressors500 | Air Compressors | 500 | 0.1075 | 0.4350 | 0.6881 | 0.0023 | 0.0240 | 232 | 0.0097 |
| 2021 | 2021Air Compressors750 | Air Compressors | 750 | 0.1667 | 0.6723 | 1.0871 | 0.0036 | 0.0376 | 358 | 0.0150 |
| 2021 | 2021Air Compressors1000 | Air Compressors | 1000 | 0.2459 | 0.9751 | 3.0739 | 0.0049 | 0.0717 | 486 | 0.0222 |
| 2021 | 2021Air Compressors Composite | Air Compressors Composite | | 0.0442 | 0.3051 | 0.2928 | 0.0007 | 0.0158 | 63.6 | 0.0040 |
| 2021 | 2021Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2021 | 2021Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2021 | 2021Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0193 | 0.2202 | 0.1710 | 0.0004 | 0.0015 | 31.0 | 0.0017 |
| 2021 | 2021Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0269 | 0.4661 | 0.2191 | 0.0009 | 0.0030 | 77.1 | 0.0024 |
| 2021 | 2021Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0373 | 0.7542 | 0.1473 | 0.0016 | 0.0039 | 141 | 0.0034 |
| 2021 | 2021Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0456 | 0.3426 | 0.1364 | 0.0021 | 0.0041 | 188 | 0.0041 |
| 2021 | 2021Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0753 | 0.5512 | 0.2223 | 0.0031 | 0.0068 | 311 | 0.0068 |
| 2021 | 2021Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1488 | 1.0889 | 0.4398 | 0.0062 | 0.0134 | 615 | 0.0134 |
| 2021 | 2021Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2329 | 1.6434 | 3.9539 | 0.0093 | 0.0472 | 928 | 0.0210 |
| 2021 | 2021Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0460 | 0.5007 | 0.3219 | 0.0017 | 0.0053 | 165 | 0.0042 |
| 2021 | 2021Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2021 | 2021Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0220 | 0.0736 | 0.1365 | 0.0002 | 0.0056 | 17.6 | 0.0020 |
| 2021 | 2021Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0086 | 0.0415 | 0.0535 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2021 | 2021Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2021 | 2021Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0384 | 0.2382 | 0.2160 | 0.0004 | 0.0098 | 30.2 | 0.0035 |
| 2021 | 2021Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0483 | 0.4598 | 0.3802 | 0.0009 | 0.0217 | 74.1 | 0.0044 |
| 2021 | 2021Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0808 | 0.8662 | 0.5793 | 0.0018 | 0.0286 | 160 | 0.0073 |
| 2021 | 2021Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0444 | 0.3761 | 0.3176 | 0.0007 | 0.0171 | 58.5 | 0.0040 |
| 2021 | 2021Cranes50 | Cranes | 50 | 0.0483 | 0.2377 | 0.1837 | 0.0003 | 0.0107 | 23.2 | 0.0044 |
| 2021 | 2021Cranes120 | Cranes | 120 | 0.0499 | 0.3428 | 0.3072 | 0.0006 | 0.0210 | 50.1 | 0.0045 |
| 2021 | 2021Cranes175 | Cranes | 175 | 0.0601 | 0.4750 | 0.3641 | 0.0009 | 0.0197 | 80.3 | 0.0054 |
| 2021 | 2021Cranes250 | Cranes | 250 | 0.0667 | 0.2407 | 0.4404 | 0.0013 | 0.0152 | 112 | 0.0060 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 2021Cranes500 | Cranes | 500 | 0.1035 | 0.3747 | 0.6303 | 0.0018 | 0.0231 | 180 | 0.0093 |
| 2021 | 2021Cranes750 | Cranes | 750 | 0.1746 | 0.6301 | 1.0891 | 0.0030 | 0.0393 | 303 | 0.0158 |
| 2021 | 2021Cranes9999 | Cranes | 9999 | 0.6375 | 2.1272 | 6.6964 | 0.0098 | 0.1645 | 971 | 0.0575 |
| 2021 | 2021Cranes Composite | Cranes Composite | | 0.0846 | 0.3865 | 0.6033 | 0.0014 | 0.0229 | 129 | 0.0076 |
| 2021 | 2021Crawler Tractors50 | Crawler Tractors | 50 | 0.0649 | 0.2722 | 0.2046 | 0.0003 | 0.0136 | 24.9 | 0.0059 |
| 2021 | 2021Crawler Tractors120 | Crawler Tractors | 120 | 0.0780 | 0.4606 | 0.4585 | 0.0008 | 0.0336 | 65.8 | 0.0070 |
| 2021 | 2021Crawler Tractors175 | Crawler Tractors | 175 | 0.1054 | 0.7292 | 0.6524 | 0.0014 | 0.0362 | 121 | 0.0095 |
| 2021 | 2021Crawler Tractors250 | Crawler Tractors | 250 | 0.1123 | 0.3881 | 0.7899 | 0.0019 | 0.0285 | 166 | 0.0101 |
| 2021 | 2021Crawler Tractors500 | Crawler Tractors | 500 | 0.1669 | 0.6452 | 1.1075 | 0.0025 | 0.0412 | 259 | 0.0151 |
| 2021 | 2021Crawler Tractors750 | Crawler Tractors | 750 | 0.3006 | 1.1555 | 2.0421 | 0.0047 | 0.0750 | 465 | 0.0271 |
| 2021 | 2021Crawler Tractors1000 | Crawler Tractors | 1000 | 0.4584 | 1.7742 | 4.9834 | 0.0066 | 0.1317 | 658 | 0.0414 |
| 2021 | 2021Crawler Tractors Composite | Crawler Tractors Composite | | 0.0988 | 0.5208 | 0.6239 | 0.0013 | 0.0343 | 114 | 0.0089 |
| 2021 | 2021Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0668 | 0.3978 | 0.3262 | 0.0006 | 0.0156 | 44.0 | 0.0060 |
| 2021 | 2021Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0641 | 0.5430 | 0.4374 | 0.0010 | 0.0261 | 83.1 | 0.0058 |
| 2021 | 2021Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1015 | 0.9522 | 0.6223 | 0.0019 | 0.0324 | 167 | 0.0092 |
| 2021 | 2021Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1182 | 0.4815 | 0.7556 | 0.0028 | 0.0248 | 245 | 0.0107 |
| 2021 | 2021Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1765 | 0.7050 | 1.0353 | 0.0037 | 0.0366 | 374 | 0.0159 |
| 2021 | 2021Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2779 | 1.1108 | 1.6653 | 0.0059 | 0.0578 | 589 | 0.0251 |
| 2021 | 2021Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.7241 | 2.6136 | 8.0264 | 0.0131 | 0.1854 | 1,308 | 0.0653 |
| 2021 | 2021Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0872 | 0.6224 | 0.5412 | 0.0015 | 0.0270 | 132 | 0.0079 |
| 2021 | 2021Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2021 | 2021Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2021 | 2021Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2021 | 2021Excavators50 | Excavators | 50 | 0.0356 | 0.2421 | 0.1802 | 0.0003 | 0.0068 | 25.0 | 0.0032 |
| 2021 | 2021Excavators120 | Excavators | 120 | 0.0543 | 0.4967 | 0.3429 | 0.0009 | 0.0174 | 73.6 | 0.0049 |
| 2021 | 2021Excavators175 | Excavators | 175 | 0.0655 | 0.6637 | 0.3377 | 0.0013 | 0.0168 | 112 | 0.0059 |
| 2021 | 2021Excavators250 | Excavators | 250 | 0.0783 | 0.3258 | 0.3891 | 0.0018 | 0.0134 | 159 | 0.0071 |
| 2021 | 2021Excavators500 | Excavators | 500 | 0.1137 | 0.4561 | 0.5254 | 0.0023 | 0.0191 | 234 | 0.0103 |
| 2021 | 2021Excavators750 | Excavators | 750 | 0.1885 | 0.7559 | 0.8840 | 0.0039 | 0.0319 | 387 | 0.0170 |
| 2021 | 2021Excavators Composite | Excavators Composite | | 0.0687 | 0.5113 | 0.3577 | 0.0013 | 0.0158 | 120 | 0.0062 |
| 2021 | 2021Forklifts50 | Forklifts | 50 | 0.0175 | 0.1376 | 0.1034 | 0.0002 | 0.0032 | 14.7 | 0.0016 |
| 2021 | 2021Forklifts120 | Forklifts | 120 | 0.0207 | 0.2091 | 0.1321 | 0.0004 | 0.0059 | 31.2 | 0.0019 |
| 2021 | 2021Forklifts175 | Forklifts | 175 | 0.0305 | 0.3303 | 0.1503 | 0.0006 | 0.0069 | 56.1 | 0.0027 |
| 2021 | 2021Forklifts250 | Forklifts | 250 | 0.0354 | 0.1548 | 0.1554 | 0.0009 | 0.0050 | 77.1 | 0.0032 |
| 2021 | 2021Forklifts500 | Forklifts | 500 | 0.0506 | 0.2120 | 0.2091 | 0.0011 | 0.0070 | 111 | 0.0046 |
| 2021 | 2021Forklifts Composite | Forklifts Composite | | 0.0294 | 0.2148 | 0.1459 | 0.0006 | 0.0056 | 54.4 | 0.0027 |
| 2021 | 2021Generator Sets15 | Generator Sets | 15 | 0.0114 | 0.0635 | 0.0800 | 0.0002 | 0.0036 | 10.2 | 0.0010 |
| 2021 | 2021Generator Sets25 | Generator Sets | 25 | 0.0221 | 0.0761 | 0.1397 | 0.0002 | 0.0061 | 17.6 | 0.0020 |
| 2021 | 2021Generator Sets50 | Generator Sets | 50 | 0.0338 | 0.2115 | 0.2116 | 0.0004 | 0.0091 | 30.6 | 0.0030 |
| 2021 | 2021Generator Sets120 | Generator Sets | 120 | 0.0456 | 0.4617 | 0.3996 | 0.0009 | 0.0215 | 77.9 | 0.0041 |
| 2021 | 2021Generator Sets175 | Generator Sets | 175 | 0.0617 | 0.7313 | 0.5233 | 0.0016 | 0.0233 | 142 | 0.0056 |
| 2021 | 2021Generator Sets250 | Generator Sets | 250 | 0.0694 | 0.3807 | 0.6568 | 0.0024 | 0.0190 | 213 | 0.0063 |
| 2021 | 2021Generator Sets500 | Generator Sets | 500 | 0.1052 | 0.5913 | 0.9401 | 0.0033 | 0.0291 | 337 | 0.0095 |
| 2021 | 2021Generator Sets750 | Generator Sets | 750 | 0.1717 | 0.9545 | 1.5502 | 0.0055 | 0.0475 | 544 | 0.0155 |
| 2021 | 2021Generator Sets9999 | Generator Sets | 9999 | 0.4120 | 1.9665 | 6.2664 | 0.0105 | 0.1316 | 1,049 | 0.0372 |
| 2021 | 2021Generator Sets Composite | Generator Sets Composite | | 0.0363 | 0.2708 | 0.2978 | 0.0007 | 0.0131 | 61.0 | 0.0033 |
| 2021 | 2021Graders50 | Graders | 50 | 0.0516 | 0.2718 | 0.2089 | 0.0004 | 0.0109 | 27.5 | 0.0047 |
| 2021 | 2021Graders120 | Graders | 120 | 0.0684 | 0.5069 | 0.4241 | 0.0009 | 0.0272 | 75.0 | 0.0062 |
| 2021 | 2021Graders175 | Graders | 175 | 0.0854 | 0.7277 | 0.5015 | 0.0014 | 0.0267 | 124 | 0.0077 |
| 2021 | 2021Graders250 | Graders | 250 | 0.0947 | 0.3647 | 0.5955 | 0.0019 | 0.0205 | 172 | 0.0085 |
| 2021 | 2021Graders500 | Graders | 500 | 0.1222 | 0.4875 | 0.7112 | 0.0023 | 0.0258 | 229 | 0.0110 |
| 2021 | 2021Graders750 | Graders | 750 | 0.2598 | 1.0314 | 1.5507 | 0.0049 | 0.0555 | 486 | 0.0234 |
| 2021 | 2021Graders Composite | Graders Composite | | 0.0861 | 0.5747 | 0.5213 | 0.0015 | 0.0247 | 133 | 0.0078 |
| 2021 | 2021Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1378 | 0.6749 | 0.7959 | 0.0011 | 0.0626 | 93.7 | 0.0124 |
| 2021 | 2021Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1379 | 0.8000 | 0.9027 | 0.0015 | 0.0507 | 130 | 0.0124 |
| 2021 | 2021Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1087 | 0.3507 | 0.8198 | 0.0015 | 0.0320 | 130 | 0.0098 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 2021Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.4454 | 1.7945 | 3.3054 | 0.0057 | 0.1282 | 568 | 0.0402 |
| 2021 | 2021Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.6794 | 2.8019 | 7.1274 | 0.0082 | 0.2070 | 814 | 0.0613 |
| 2021 | 2021Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1394 | 0.6413 | 0.9902 | 0.0017 | 0.0459 | 151 | 0.0126 |
| 2021 | 2021Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0782 | 0.7537 | 0.4000 | 0.0014 | 0.0203 | 125 | 0.0071 |
| 2021 | 2021Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0879 | 0.3493 | 0.4383 | 0.0019 | 0.0151 | 167 | 0.0079 |
| 2021 | 2021Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1415 | 0.5407 | 0.6543 | 0.0027 | 0.0240 | 272 | 0.0128 |
| 2021 | 2021Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2297 | 0.8769 | 1.0788 | 0.0044 | 0.0391 | 442 | 0.0207 |
| 2021 | 2021Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.3421 | 1.2771 | 3.7016 | 0.0063 | 0.0814 | 625 | 0.0309 |
| 2021 | 2021Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1370 | 0.5476 | 0.7382 | 0.0027 | 0.0246 | 260 | 0.0124 |
| 2021 | 2021Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2021 | 2021Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2021 | 2021Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0303 | 0.2243 | 0.1893 | 0.0004 | 0.0067 | 28.0 | 0.0027 |
| 2021 | 2021Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0468 | 0.5069 | 0.3537 | 0.0009 | 0.0169 | 80.9 | 0.0042 |
| 2021 | 2021Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0491 | 0.5858 | 0.2972 | 0.0012 | 0.0142 | 107 | 0.0044 |
| 2021 | 2021Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0961 | 0.4654 | 0.5253 | 0.0025 | 0.0185 | 254 | 0.0087 |
| 2021 | 2021Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0534 | 0.3497 | 0.3120 | 0.0013 | 0.0121 | 122 | 0.0048 |
| 2021 | 2021Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2021 | 2021Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2021 | 2021Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0388 | 0.2161 | 0.1676 | 0.0003 | 0.0086 | 21.7 | 0.0035 |
| 2021 | 2021Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0551 | 0.4205 | 0.3467 | 0.0007 | 0.0218 | 62.0 | 0.0050 |
| 2021 | 2021Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0664 | 0.5654 | 0.3871 | 0.0011 | 0.0205 | 95.9 | 0.0060 |
| 2021 | 2021Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0739 | 0.2775 | 0.4574 | 0.0015 | 0.0149 | 136 | 0.0067 |
| 2021 | 2021Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1411 | 0.5167 | 0.8006 | 0.0026 | 0.0282 | 265 | 0.0127 |
| 2021 | 2021Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2333 | 0.8515 | 1.3488 | 0.0044 | 0.0470 | 437 | 0.0210 |
| 2021 | 2021Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.3231 | 1.1617 | 3.6053 | 0.0056 | 0.0863 | 560 | 0.0292 |
| 2021 | 2021Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0915 | 0.4479 | 0.5887 | 0.0016 | 0.0227 | 152 | 0.0083 |
| 2021 | 2021Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0535 | 0.2980 | 0.2331 | 0.0004 | 0.0120 | 30.3 | 0.0048 |
| 2021 | 2021Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0533 | 0.4091 | 0.3386 | 0.0007 | 0.0213 | 60.7 | 0.0048 |
| 2021 | 2021Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0837 | 0.7158 | 0.4921 | 0.0014 | 0.0261 | 122 | 0.0075 |
| 2021 | 2021Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0781 | 0.2953 | 0.4889 | 0.0016 | 0.0159 | 145 | 0.0070 |
| 2021 | 2021Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1007 | 0.3715 | 0.5777 | 0.0019 | 0.0203 | 192 | 0.0091 |
| 2021 | 2021Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.4606 | 1.5333 | 4.7673 | 0.0073 | 0.1140 | 741 | 0.0416 |
| 2021 | 2021Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0860 | 0.4392 | 0.5748 | 0.0015 | 0.0218 | 141 | 0.0078 |
| 2021 | 2021Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1425 | 0.0002 | 0.0055 | 18.7 | 0.0020 |
| 2021 | 2021Pavers50 | Pavers | 50 | 0.0774 | 0.2996 | 0.2332 | 0.0004 | 0.0168 | 28.0 | 0.0070 |
| 2021 | 2021Pavers120 | Pavers | 120 | 0.0855 | 0.4780 | 0.5137 | 0.0008 | 0.0391 | 69.2 | 0.0077 |
| 2021 | 2021Pavers175 | Pavers | 175 | 0.1148 | 0.7586 | 0.7520 | 0.0014 | 0.0421 | 128 | 0.0104 |
| 2021 | 2021Pavers250 | Pavers | 250 | 0.1338 | 0.4598 | 1.0174 | 0.0022 | 0.0371 | 194 | 0.0121 |
| 2021 | 2021Pavers500 | Pavers | 500 | 0.1518 | 0.6069 | 1.0951 | 0.0023 | 0.0410 | 233 | 0.0137 |
| 2021 | 2021Pavers Composite | Pavers Composite | | 0.0928 | 0.4878 | 0.5089 | 0.0009 | 0.0325 | 77.9 | 0.0084 |
| 2021 | 2021Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2021 | 2021Paving Equipment50 | Paving Equipment | 50 | 0.0648 | 0.2524 | 0.1987 | 0.0003 | 0.0143 | 23.9 | 0.0058 |
| 2021 | 2021Paving Equipment120 | Paving Equipment | 120 | 0.0662 | 0.3741 | 0.4010 | 0.0006 | 0.0307 | 54.5 | 0.0060 |
| 2021 | 2021Paving Equipment175 | Paving Equipment | 175 | 0.0888 | 0.5934 | 0.5867 | 0.0011 | 0.0329 | 101 | 0.0080 |
| 2021 | 2021Paving Equipment250 | Paving Equipment | 250 | 0.0820 | 0.2827 | 0.6331 | 0.0014 | 0.0227 | 122 | 0.0074 |
| 2021 | 2021Paving Equipment Composite | Paving Equipment Composite | | 0.0710 | 0.4062 | 0.4462 | 0.0008 | 0.0288 | 68.9 | 0.0064 |
| 2021 | 2021Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2021 | 2021Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2021 | 2021Pressure Washers15 | Pressure Washers | 15 | 0.0055 | 0.0304 | 0.0383 | 0.0001 | 0.0017 | 4.9 | 0.0005 |
| 2021 | 2021Pressure Washers25 | Pressure Washers | 25 | 0.0090 | 0.0308 | 0.0566 | 0.0001 | 0.0025 | 7.1 | 0.0008 |
| 2021 | 2021Pressure Washers50 | Pressure Washers | 50 | 0.0113 | 0.0841 | 0.0949 | 0.0002 | 0.0035 | 14.3 | 0.0010 |
| 2021 | 2021Pressure Washers120 | Pressure Washers | 120 | 0.0114 | 0.1362 | 0.1182 | 0.0003 | 0.0056 | 24.1 | 0.0010 |
| 2021 | 2021Pressure Washers Composite | Pressure Washers Composite | | 0.0079 | 0.0543 | 0.0625 | 0.0001 | 0.0027 | 9.4 | 0.0007 |
| 2021 | 2021Pumps15 | Pumps | 15 | 0.0094 | 0.0462 | 0.0585 | 0.0001 | 0.0028 | 7.4 | 0.0008 |
| 2021 | 2021Pumps25 | Pumps | 25 | 0.0259 | 0.0841 | 0.1544 | 0.0002 | 0.0070 | 19.5 | 0.0023 |
| 2021 | 2021Pumps50 | Pumps | 50 | 0.0415 | 0.2490 | 0.2404 | 0.0004 | 0.0108 | 34.3 | 0.0037 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 2021Pumps120 | Pumps | 120 | 0.0484 | 0.4687 | 0.4054 | 0.0009 | 0.0227 | 77.9 | 0.0044 |
| 2021 | 2021Pumps175 | Pumps | 175 | 0.0652 | 0.7325 | 0.5249 | 0.0016 | 0.0242 | 140 | 0.0059 |
| 2021 | 2021Pumps250 | Pumps | 250 | 0.0707 | 0.3662 | 0.6331 | 0.0023 | 0.0187 | 201 | 0.0064 |
| 2021 | 2021Pumps500 | Pumps | 500 | 0.1162 | 0.6131 | 0.9769 | 0.0034 | 0.0310 | 345 | 0.0105 |
| 2021 | 2021Pumps750 | Pumps | 750 | 0.1939 | 1.0135 | 1.6500 | 0.0057 | 0.0519 | 571 | 0.0175 |
| 2021 | 2021Pumps9999 | Pumps | 9999 | 0.5635 | 2.5731 | 8.1862 | 0.0136 | 0.1751 | 1,355 | 0.0508 |
| 2021 | 2021Pumps Composite | Pumps Composite | | 0.0344 | 0.2652 | 0.2637 | 0.0006 | 0.0128 | 49.6 | 0.0031 |
| 2021 | 2021Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2021 | 2021Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2021 | 2021Rollers50 | Rollers | 50 | 0.0491 | 0.2389 | 0.1979 | 0.0003 | 0.0114 | 26.0 | 0.0044 |
| 2021 | 2021Rollers120 | Rollers | 120 | 0.0529 | 0.3854 | 0.3524 | 0.0007 | 0.0238 | 59.0 | 0.0048 |
| 2021 | 2021Rollers175 | Rollers | 175 | 0.0719 | 0.6108 | 0.4775 | 0.0012 | 0.0254 | 108 | 0.0065 |
| 2021 | 2021Rollers250 | Rollers | 250 | 0.0800 | 0.3158 | 0.5870 | 0.0017 | 0.0201 | 153 | 0.0072 |
| 2021 | 2021Rollers500 | Rollers | 500 | 0.1100 | 0.4490 | 0.7481 | 0.0022 | 0.0270 | 219 | 0.0099 |
| 2021 | 2021Rollers Composite | Rollers Composite | | 0.0540 | 0.3816 | 0.3483 | 0.0008 | 0.0206 | 67.0 | 0.0049 |
| 2021 | 2021Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0479 | 0.3133 | 0.2472 | 0.0004 | 0.0105 | 33.9 | 0.0043 |
| 2021 | 2021Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0461 | 0.4131 | 0.3062 | 0.0007 | 0.0168 | 62.4 | 0.0042 |
| 2021 | 2021Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0736 | 0.7229 | 0.4132 | 0.0014 | 0.0213 | 125 | 0.0066 |
| 2021 | 2021Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0832 | 0.3419 | 0.4658 | 0.0019 | 0.0158 | 171 | 0.0075 |
| 2021 | 2021Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1228 | 0.4904 | 0.6343 | 0.0025 | 0.0231 | 257 | 0.0111 |
| 2021 | 2021Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0497 | 0.4454 | 0.3193 | 0.0008 | 0.0172 | 70.3 | 0.0045 |
| 2021 | 2021Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1432 | 0.8097 | 0.9278 | 0.0015 | 0.0522 | 129 | 0.0129 |
| 2021 | 2021Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1616 | 0.5121 | 1.1988 | 0.0021 | 0.0475 | 183 | 0.0146 |
| 2021 | 2021Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2182 | 0.8829 | 1.5670 | 0.0026 | 0.0622 | 265 | 0.0197 |
| 2021 | 2021Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3297 | 1.3266 | 2.4124 | 0.0040 | 0.0946 | 399 | 0.0297 |
| 2021 | 2021Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.5186 | 2.1395 | 5.3122 | 0.0060 | 0.1566 | 592 | 0.0468 |
| 2021 | 2021Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2015 | 0.7661 | 1.4661 | 0.0025 | 0.0582 | 239 | 0.0182 |
| 2021 | 2021Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2021 | 2021Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0561 | 0.3032 | 0.2349 | 0.0004 | 0.0120 | 31.1 | 0.0051 |
| 2021 | 2021Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0520 | 0.3960 | 0.3271 | 0.0007 | 0.0206 | 58.9 | 0.0047 |
| 2021 | 2021Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0712 | 0.6211 | 0.4192 | 0.0012 | 0.0222 | 106 | 0.0064 |
| 2021 | 2021Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0804 | 0.3129 | 0.5008 | 0.0017 | 0.0173 | 149 | 0.0073 |
| 2021 | 2021Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1240 | 0.4920 | 0.7143 | 0.0023 | 0.0260 | 237 | 0.0112 |
| 2021 | 2021Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2549 | 1.0075 | 1.5039 | 0.0049 | 0.0540 | 486 | 0.0230 |
| 2021 | 2021Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.3298 | 1.2808 | 3.8115 | 0.0060 | 0.0894 | 594 | 0.0298 |
| 2021 | 2021Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0705 | 0.4381 | 0.4275 | 0.0012 | 0.0206 | 109 | 0.0064 |
| 2021 | 2021Scrapers120 | Scrapers | 120 | 0.1142 | 0.6580 | 0.6720 | 0.0011 | 0.0501 | 93.9 | 0.0103 |
| 2021 | 2021Scrapers175 | Scrapers | 175 | 0.1316 | 0.8907 | 0.8250 | 0.0017 | 0.0460 | 148 | 0.0119 |
| 2021 | 2021Scrapers250 | Scrapers | 250 | 0.1442 | 0.4935 | 1.0349 | 0.0024 | 0.0374 | 209 | 0.0130 |
| 2021 | 2021Scrapers500 | Scrapers | 500 | 0.2102 | 0.8168 | 1.4242 | 0.0032 | 0.0531 | 321 | 0.0190 |
| 2021 | 2021Scrapers750 | Scrapers | 750 | 0.3649 | 1.4095 | 2.5312 | 0.0056 | 0.0932 | 555 | 0.0329 |
| 2021 | 2021Scrapers Composite | Scrapers Composite | | 0.1815 | 0.7745 | 1.2263 | 0.0027 | 0.0492 | 262 | 0.0164 |
| 2021 | 2021Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2021 | 2021Signal Boards50 | Signal Boards | 50 | 0.0455 | 0.2789 | 0.2549 | 0.0005 | 0.0114 | 36.2 | 0.0041 |
| 2021 | 2021Signal Boards120 | Signal Boards | 120 | 0.0513 | 0.4930 | 0.4078 | 0.0009 | 0.0230 | 80.2 | 0.0046 |
| 2021 | 2021Signal Boards175 | Signal Boards | 175 | 0.0757 | 0.8277 | 0.5557 | 0.0017 | 0.0267 | 155 | 0.0068 |
| 2021 | 2021Signal Boards250 | Signal Boards | 250 | 0.0968 | 0.4734 | 0.7633 | 0.0029 | 0.0235 | 255 | 0.0087 |
| 2021 | 2021Signal Boards Composite | Signal Boards Composite | | 0.0125 | 0.0911 | 0.0863 | 0.0002 | 0.0039 | 16.7 | 0.0011 |
| 2021 | 2021Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0169 | 0.0572 | 0.1065 | 0.0002 | 0.0042 | 13.8 | 0.0015 |
| 2021 | 2021Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0220 | 0.1998 | 0.1600 | 0.0003 | 0.0036 | 25.5 | 0.0020 |
| 2021 | 2021Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0207 | 0.2671 | 0.1538 | 0.0005 | 0.0053 | 42.8 | 0.0019 |
| 2021 | 2021Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0212 | 0.2119 | 0.1544 | 0.0004 | 0.0042 | 30.3 | 0.0019 |
| 2021 | 2021Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0242 | 0.1170 | 0.1037 | 0.0002 | 0.0057 | 14.1 | 0.0022 |
| 2021 | 2021Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0525 | 0.4008 | 0.3760 | 0.0007 | 0.0242 | 63.8 | 0.0047 |
| 2021 | 2021Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0511 | 0.4658 | 0.3757 | 0.0010 | 0.0189 | 85.8 | 0.0046 |
| 2021 | 2021Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0617 | 0.2715 | 0.5141 | 0.0015 | 0.0170 | 135 | 0.0056 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 2021Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0959 | 0.4602 | 0.7556 | 0.0022 | 0.0261 | 221 | 0.0087 |
| 2021 | 2021Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1520 | 0.7215 | 1.2216 | 0.0035 | 0.0416 | 347 | 0.0137 |
| 2021 | 2021Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0779 | 0.3860 | 0.5953 | 0.0017 | 0.0216 | 166 | 0.0070 |
| 2021 | 2021Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2021 | 2021Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2021 | 2021Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0391 | 0.2844 | 0.2261 | 0.0004 | 0.0081 | 31.6 | 0.0035 |
| 2021 | 2021Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0510 | 0.4931 | 0.3380 | 0.0009 | 0.0173 | 75.0 | 0.0046 |
| 2021 | 2021Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0774 | 0.8017 | 0.4205 | 0.0016 | 0.0208 | 139 | 0.0070 |
| 2021 | 2021Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0744 | 0.3184 | 0.3827 | 0.0018 | 0.0125 | 162 | 0.0067 |
| 2021 | 2021Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0536 | 0.4882 | 0.3225 | 0.0009 | 0.0151 | 78.5 | 0.0048 |
| 2021 | 2021Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2021 | 2021Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0376 | 0.2733 | 0.2108 | 0.0004 | 0.0073 | 30.3 | 0.0034 |
| 2021 | 2021Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0340 | 0.3394 | 0.2275 | 0.0006 | 0.0108 | 51.7 | 0.0031 |
| 2021 | 2021Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0533 | 0.5841 | 0.2798 | 0.0011 | 0.0135 | 101 | 0.0048 |
| 2021 | 2021Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0769 | 0.3430 | 0.3814 | 0.0019 | 0.0131 | 172 | 0.0069 |
| 2021 | 2021Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1523 | 0.6596 | 0.7068 | 0.0039 | 0.0255 | 345 | 0.0137 |
| 2021 | 2021Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2284 | 0.9891 | 1.0736 | 0.0058 | 0.0385 | 517 | 0.0206 |
| 2021 | 2021Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0407 | 0.3606 | 0.2506 | 0.0008 | 0.0113 | 66.8 | 0.0037 |
| 2021 | 2021Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2021 | 2021Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2021 | 2021Trenchers50 | Trenchers | 50 | 0.0921 | 0.3425 | 0.2729 | 0.0004 | 0.0201 | 32.9 | 0.0083 |
| 2021 | 2021Trenchers120 | Trenchers | 120 | 0.0799 | 0.4419 | 0.4914 | 0.0008 | 0.0375 | 64.9 | 0.0072 |
| 2021 | 2021Trenchers175 | Trenchers | 175 | 0.1272 | 0.8376 | 0.8675 | 0.0016 | 0.0481 | 144 | 0.0115 |
| 2021 | 2021Trenchers250 | Trenchers | 250 | 0.1517 | 0.5327 | 1.2061 | 0.0025 | 0.0445 | 223 | 0.0137 |
| 2021 | 2021Trenchers500 | Trenchers | 500 | 0.1992 | 0.8364 | 1.5150 | 0.0031 | 0.0571 | 311 | 0.0180 |
| 2021 | 2021Trenchers750 | Trenchers | 750 | 0.3775 | 1.5747 | 2.9328 | 0.0059 | 0.1091 | 587 | 0.0341 |
| 2021 | 2021Trenchers Composite | Trenchers Composite | | 0.0874 | 0.4226 | 0.4327 | 0.0007 | 0.0309 | 58.7 | 0.0079 |
| 2021 | 2021Welders15 | Welders | 15 | 0.0079 | 0.0386 | 0.0489 | 0.0001 | 0.0024 | 6.2 | 0.0007 |
| 2021 | 2021Welders25 | Welders | 25 | 0.0150 | 0.0487 | 0.0894 | 0.0001 | 0.0040 | 11.3 | 0.0014 |
| 2021 | 2021Welders50 | Welders | 50 | 0.0387 | 0.2163 | 0.1893 | 0.0003 | 0.0094 | 26.0 | 0.0035 |
| 2021 | 2021Welders120 | Welders | 120 | 0.0291 | 0.2492 | 0.2134 | 0.0005 | 0.0131 | 39.5 | 0.0026 |
| 2021 | 2021Welders175 | Welders | 175 | 0.0552 | 0.5383 | 0.3833 | 0.0011 | 0.0194 | 98.2 | 0.0050 |
| 2021 | 2021Welders250 | Welders | 250 | 0.0515 | 0.2269 | 0.3907 | 0.0013 | 0.0123 | 119 | 0.0046 |
| 2021 | 2021Welders500 | Welders | 500 | 0.0703 | 0.3086 | 0.4915 | 0.0016 | 0.0167 | 168 | 0.0063 |
| 2021 | 2021Welders Composite | Welders Composite | | 0.0280 | 0.1788 | 0.1635 | 0.0003 | 0.0088 | 25.6 | 0.0025 |
| 2022 | 2022Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2022 | 2022Aerial Lifts25 | Aerial Lifts | 25 | 0.0134 | 0.0454 | 0.0845 | 0.0001 | 0.0033 | 11.0 | 0.0012 |
| 2022 | 2022Aerial Lifts50 | Aerial Lifts | 50 | 0.0213 | 0.1388 | 0.1328 | 0.0003 | 0.0053 | 19.6 | 0.0019 |
| 2022 | 2022Aerial Lifts120 | Aerial Lifts | 120 | 0.0216 | 0.2275 | 0.1829 | 0.0004 | 0.0096 | 38.1 | 0.0020 |
| 2022 | 2022Aerial Lifts500 | Aerial Lifts | 500 | 0.0668 | 0.3746 | 0.5339 | 0.0021 | 0.0167 | 213 | 0.0060 |
| 2022 | 2022Aerial Lifts750 | Aerial Lifts | 750 | 0.1217 | 0.6772 | 0.9849 | 0.0039 | 0.0305 | 385 | 0.0110 |
| 2022 | 2022Aerial Lifts Composite | Aerial Lifts Composite | | 0.0222 | 0.1667 | 0.1619 | 0.0004 | 0.0071 | 34.7 | 0.0020 |
| 2022 | 2022Air Compressors15 | Air Compressors | 15 | 0.0090 | 0.0448 | 0.0562 | 0.0001 | 0.0026 | 7.2 | 0.0008 |
| 2022 | 2022Air Compressors25 | Air Compressors | 25 | 0.0189 | 0.0618 | 0.1138 | 0.0002 | 0.0049 | 14.4 | 0.0017 |
| 2022 | 2022Air Compressors50 | Air Compressors | 50 | 0.0326 | 0.1954 | 0.1609 | 0.0003 | 0.0073 | 22.3 | 0.0029 |
| 2022 | 2022Air Compressors120 | Air Compressors | 120 | 0.0346 | 0.3031 | 0.2371 | 0.0006 | 0.0139 | 47.0 | 0.0031 |
| 2022 | 2022Air Compressors175 | Air Compressors | 175 | 0.0508 | 0.4979 | 0.3093 | 0.0010 | 0.0161 | 88.5 | 0.0046 |
| 2022 | 2022Air Compressors250 | Air Compressors | 250 | 0.0595 | 0.2550 | 0.3794 | 0.0015 | 0.0124 | 131 | 0.0054 |
| 2022 | 2022Air Compressors500 | Air Compressors | 500 | 0.1026 | 0.4326 | 0.6095 | 0.0023 | 0.0211 | 232 | 0.0093 |
| 2022 | 2022Air Compressors750 | Air Compressors | 750 | 0.1590 | 0.6685 | 0.9614 | 0.0036 | 0.0330 | 358 | 0.0143 |
| 2022 | 2022Air Compressors1000 | Air Compressors | 1000 | 0.2330 | 0.9602 | 2.9122 | 0.0049 | 0.0651 | 486 | 0.0210 |
| 2022 | 2022Air Compressors Composite | Air Compressors Composite | | 0.0414 | 0.3041 | 0.2677 | 0.0007 | 0.0138 | 63.6 | 0.0037 |
| 2022 | 2022Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2022 | 2022Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2022 | 2022Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0192 | 0.2200 | 0.1680 | 0.0004 | 0.0011 | 31.0 | 0.0017 |
| 2022 | 2022Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0262 | 0.4660 | 0.2091 | 0.0009 | 0.0025 | 77.1 | 0.0024 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 2022Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0353 | 0.7541 | 0.1179 | 0.0016 | 0.0035 | 141 | 0.0032 |
| 2022 | 2022Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0442 | 0.3426 | 0.1180 | 0.0021 | 0.0039 | 188 | 0.0040 |
| 2022 | 2022Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0731 | 0.5511 | 0.1932 | 0.0031 | 0.0065 | 311 | 0.0066 |
| 2022 | 2022Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1444 | 1.0889 | 0.3821 | 0.0062 | 0.0128 | 615 | 0.0130 |
| 2022 | 2022Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2241 | 1.6434 | 3.9312 | 0.0093 | 0.0428 | 928 | 0.0202 |
| 2022 | 2022Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0446 | 0.5007 | 0.3059 | 0.0017 | 0.0048 | 165 | 0.0040 |
| 2022 | 2022Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2022 | 2022Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0218 | 0.0731 | 0.1359 | 0.0002 | 0.0054 | 17.6 | 0.0020 |
| 2022 | 2022Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0535 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2022 | 2022Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2022 | 2022Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0351 | 0.2351 | 0.2093 | 0.0004 | 0.0084 | 30.2 | 0.0032 |
| 2022 | 2022Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0448 | 0.4586 | 0.3505 | 0.0009 | 0.0188 | 74.1 | 0.0040 |
| 2022 | 2022Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0755 | 0.8662 | 0.5091 | 0.0018 | 0.0251 | 160 | 0.0068 |
| 2022 | 2022Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0411 | 0.3743 | 0.2962 | 0.0007 | 0.0148 | 58.5 | 0.0037 |
| 2022 | 2022Cranes50 | Cranes | 50 | 0.0439 | 0.2338 | 0.1783 | 0.0003 | 0.0094 | 23.2 | 0.0040 |
| 2022 | 2022Cranes120 | Cranes | 120 | 0.0459 | 0.3413 | 0.2846 | 0.0006 | 0.0182 | 50.1 | 0.0041 |
| 2022 | 2022Cranes175 | Cranes | 175 | 0.0559 | 0.4747 | 0.3248 | 0.0009 | 0.0174 | 80.3 | 0.0050 |
| 2022 | 2022Cranes250 | Cranes | 250 | 0.0632 | 0.2378 | 0.3906 | 0.0013 | 0.0135 | 112 | 0.0057 |
| 2022 | 2022Cranes500 | Cranes | 500 | 0.0985 | 0.3670 | 0.5626 | 0.0018 | 0.0207 | 180 | 0.0089 |
| 2022 | 2022Cranes750 | Cranes | 750 | 0.1661 | 0.6173 | 0.9687 | 0.0030 | 0.0352 | 303 | 0.0150 |
| 2022 | 2022Cranes9999 | Cranes | 9999 | 0.6059 | 2.0738 | 6.3749 | 0.0098 | 0.1504 | 971 | 0.0547 |
| 2022 | 2022Cranes Composite | Cranes Composite | | 0.0798 | 0.3822 | 0.5505 | 0.0014 | 0.0203 | 129 | 0.0072 |
| 2022 | 2022Crawler Tractors50 | Crawler Tractors | 50 | 0.0603 | 0.2677 | 0.1989 | 0.0003 | 0.0123 | 24.9 | 0.0054 |
| 2022 | 2022Crawler Tractors120 | Crawler Tractors | 120 | 0.0731 | 0.4586 | 0.4297 | 0.0008 | 0.0304 | 65.8 | 0.0066 |
| 2022 | 2022Crawler Tractors175 | Crawler Tractors | 175 | 0.0989 | 0.7284 | 0.5941 | 0.0014 | 0.0328 | 121 | 0.0089 |
| 2022 | 2022Crawler Tractors250 | Crawler Tractors | 250 | 0.1065 | 0.3809 | 0.7177 | 0.0019 | 0.0258 | 166 | 0.0096 |
| 2022 | 2022Crawler Tractors500 | Crawler Tractors | 500 | 0.1588 | 0.6271 | 1.0067 | 0.0025 | 0.0374 | 259 | 0.0143 |
| 2022 | 2022Crawler Tractors750 | Crawler Tractors | 750 | 0.2860 | 1.1231 | 1.8570 | 0.0047 | 0.0680 | 465 | 0.0258 |
| 2022 | 2022Crawler Tractors1000 | Crawler Tractors | 1000 | 0.4347 | 1.7108 | 4.7678 | 0.0066 | 0.1216 | 658 | 0.0392 |
| 2022 | 2022Crawler Tractors Composite | Crawler Tractors Composite | | 0.0931 | 0.5163 | 0.5746 | 0.0013 | 0.0310 | 114 | 0.0084 |
| 2022 | 2022Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0616 | 0.3936 | 0.3162 | 0.0006 | 0.0134 | 44.0 | 0.0056 |
| 2022 | 2022Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0600 | 0.5420 | 0.4035 | 0.0010 | 0.0225 | 83.1 | 0.0054 |
| 2022 | 2022Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0952 | 0.9528 | 0.5479 | 0.0019 | 0.0282 | 167 | 0.0086 |
| 2022 | 2022Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1123 | 0.4795 | 0.6546 | 0.0028 | 0.0216 | 245 | 0.0101 |
| 2022 | 2022Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1682 | 0.7020 | 0.9136 | 0.0037 | 0.0319 | 374 | 0.0152 |
| 2022 | 2022Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2652 | 1.1064 | 1.4690 | 0.0059 | 0.0505 | 589 | 0.0239 |
| 2022 | 2022Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6919 | 2.5793 | 7.6191 | 0.0131 | 0.1680 | 1,308 | 0.0624 |
| 2022 | 2022Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0820 | 0.6208 | 0.4911 | 0.0015 | 0.0234 | 132 | 0.0074 |
| 2022 | 2022Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2022 | 2022Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2022 | 2022Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2022 | 2022Excavators50 | Excavators | 50 | 0.0336 | 0.2402 | 0.1748 | 0.0003 | 0.0058 | 25.0 | 0.0030 |
| 2022 | 2022Excavators120 | Excavators | 120 | 0.0512 | 0.4958 | 0.3181 | 0.0009 | 0.0148 | 73.6 | 0.0046 |
| 2022 | 2022Excavators175 | Excavators | 175 | 0.0614 | 0.6636 | 0.2947 | 0.0013 | 0.0145 | 112 | 0.0055 |
| 2022 | 2022Excavators250 | Excavators | 250 | 0.0743 | 0.3243 | 0.3366 | 0.0018 | 0.0116 | 159 | 0.0067 |
| 2022 | 2022Excavators500 | Excavators | 500 | 0.1081 | 0.4540 | 0.4583 | 0.0023 | 0.0166 | 234 | 0.0098 |
| 2022 | 2022Excavators750 | Excavators | 750 | 0.1793 | 0.7525 | 0.7705 | 0.0039 | 0.0277 | 387 | 0.0162 |
| 2022 | 2022Excavators Composite | Excavators Composite | | 0.0648 | 0.5104 | 0.3171 | 0.0013 | 0.0136 | 120 | 0.0059 |
| 2022 | 2022Forklifts50 | Forklifts | 50 | 0.0166 | 0.1368 | 0.0992 | 0.0002 | 0.0026 | 14.7 | 0.0015 |
| 2022 | 2022Forklifts120 | Forklifts | 120 | 0.0194 | 0.2087 | 0.1222 | 0.0004 | 0.0046 | 31.2 | 0.0018 |
| 2022 | 2022Forklifts175 | Forklifts | 175 | 0.0281 | 0.3303 | 0.1276 | 0.0006 | 0.0054 | 56.1 | 0.0025 |
| 2022 | 2022Forklifts250 | Forklifts | 250 | 0.0331 | 0.1548 | 0.1276 | 0.0009 | 0.0039 | 77.1 | 0.0030 |
| 2022 | 2022Forklifts500 | Forklifts | 500 | 0.0474 | 0.2120 | 0.1726 | 0.0011 | 0.0055 | 111 | 0.0043 |
| 2022 | 2022Forklifts Composite | Forklifts Composite | | 0.0274 | 0.2146 | 0.1265 | 0.0006 | 0.0044 | 54.4 | 0.0025 |
| 2022 | 2022Generator Sets15 | Generator Sets | 15 | 0.0113 | 0.0633 | 0.0791 | 0.0002 | 0.0035 | 10.2 | 0.0010 |
| 2022 | 2022Generator Sets25 | Generator Sets | 25 | 0.0220 | 0.0754 | 0.1389 | 0.0002 | 0.0059 | 17.6 | 0.0020 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 2022Generator Sets50 | Generator Sets | 50 | 0.0309 | 0.2089 | 0.2052 | 0.0004 | 0.0079 | 30.6 | 0.0028 |
| 2022 | 2022Generator Sets120 | Generator Sets | 120 | 0.0421 | 0.4606 | 0.3697 | 0.0009 | 0.0188 | 77.9 | 0.0038 |
| 2022 | 2022Generator Sets175 | Generator Sets | 175 | 0.0574 | 0.7315 | 0.4635 | 0.0016 | 0.0206 | 142 | 0.0052 |
| 2022 | 2022Generator Sets250 | Generator Sets | 250 | 0.0654 | 0.3784 | 0.5732 | 0.0024 | 0.0167 | 213 | 0.0059 |
| 2022 | 2022Generator Sets500 | Generator Sets | 500 | 0.0998 | 0.5878 | 0.8334 | 0.0033 | 0.0256 | 337 | 0.0090 |
| 2022 | 2022Generator Sets750 | Generator Sets | 750 | 0.1627 | 0.9489 | 1.3725 | 0.0055 | 0.0419 | 544 | 0.0147 |
| 2022 | 2022Generator Sets9999 | Generator Sets | 9999 | 0.3853 | 1.9364 | 5.9490 | 0.0105 | 0.1195 | 1,049 | 0.0348 |
| 2022 | 2022Generator Sets Composite | Generator Sets Composite | | 0.0340 | 0.2694 | 0.2783 | 0.0007 | 0.0117 | 61.0 | 0.0031 |
| 2022 | 2022Graders50 | Graders | 50 | 0.0474 | 0.2681 | 0.2028 | 0.0004 | 0.0096 | 27.5 | 0.0043 |
| 2022 | 2022Graders120 | Graders | 120 | 0.0635 | 0.5051 | 0.3943 | 0.0009 | 0.0237 | 75.0 | 0.0057 |
| 2022 | 2022Graders175 | Graders | 175 | 0.0794 | 0.7272 | 0.4462 | 0.0014 | 0.0234 | 124 | 0.0072 |
| 2022 | 2022Graders250 | Graders | 250 | 0.0899 | 0.3617 | 0.5278 | 0.0019 | 0.0183 | 172 | 0.0081 |
| 2022 | 2022Graders500 | Graders | 500 | 0.1165 | 0.4796 | 0.6329 | 0.0023 | 0.0231 | 229 | 0.0105 |
| 2022 | 2022Graders750 | Graders | 750 | 0.2474 | 1.0147 | 1.3769 | 0.0049 | 0.0496 | 486 | 0.0223 |
| 2022 | 2022Graders Composite | Graders Composite | | 0.0807 | 0.5732 | 0.4657 | 0.0015 | 0.0218 | 133 | 0.0073 |
| 2022 | 2022Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1304 | 0.6712 | 0.7522 | 0.0011 | 0.0580 | 93.7 | 0.0118 |
| 2022 | 2022Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1306 | 0.7979 | 0.8376 | 0.0015 | 0.0470 | 130 | 0.0118 |
| 2022 | 2022Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1032 | 0.3410 | 0.7591 | 0.0015 | 0.0294 | 130 | 0.0093 |
| 2022 | 2022Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.4240 | 1.7168 | 3.0614 | 0.0057 | 0.1180 | 568 | 0.0383 |
| 2022 | 2022Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.6473 | 2.6737 | 6.8441 | 0.0082 | 0.1935 | 814 | 0.0584 |
| 2022 | 2022Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1322 | 0.6320 | 0.9188 | 0.0017 | 0.0424 | 151 | 0.0119 |
| 2022 | 2022Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0734 | 0.7537 | 0.3503 | 0.0014 | 0.0176 | 125 | 0.0066 |
| 2022 | 2022Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0836 | 0.3474 | 0.3804 | 0.0019 | 0.0132 | 167 | 0.0075 |
| 2022 | 2022Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1348 | 0.5379 | 0.5724 | 0.0027 | 0.0209 | 272 | 0.0122 |
| 2022 | 2022Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2189 | 0.8725 | 0.9428 | 0.0044 | 0.0342 | 442 | 0.0198 |
| 2022 | 2022Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.3246 | 1.2658 | 3.5349 | 0.0063 | 0.0734 | 625 | 0.0293 |
| 2022 | 2022Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1303 | 0.5447 | 0.6574 | 0.0027 | 0.0216 | 260 | 0.0118 |
| 2022 | 2022Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2022 | 2022Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2022 | 2022Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0284 | 0.2225 | 0.1835 | 0.0004 | 0.0056 | 28.0 | 0.0026 |
| 2022 | 2022Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0440 | 0.5061 | 0.3277 | 0.0009 | 0.0144 | 80.9 | 0.0040 |
| 2022 | 2022Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0460 | 0.5858 | 0.2580 | 0.0012 | 0.0122 | 107 | 0.0041 |
| 2022 | 2022Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0913 | 0.4635 | 0.4587 | 0.0025 | 0.0159 | 254 | 0.0082 |
| 2022 | 2022Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0507 | 0.3488 | 0.2785 | 0.0013 | 0.0106 | 123 | 0.0046 |
| 2022 | 2022Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2022 | 2022Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2022 | 2022Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0360 | 0.2140 | 0.1625 | 0.0003 | 0.0074 | 21.7 | 0.0032 |
| 2022 | 2022Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0516 | 0.4198 | 0.3199 | 0.0007 | 0.0189 | 62.0 | 0.0047 |
| 2022 | 2022Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0623 | 0.5661 | 0.3419 | 0.0011 | 0.0179 | 95.9 | 0.0056 |
| 2022 | 2022Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0701 | 0.2762 | 0.3977 | 0.0015 | 0.0130 | 136 | 0.0063 |
| 2022 | 2022Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1344 | 0.5141 | 0.7082 | 0.0026 | 0.0247 | 265 | 0.0121 |
| 2022 | 2022Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2221 | 0.8474 | 1.1914 | 0.0044 | 0.0411 | 437 | 0.0200 |
| 2022 | 2022Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.3060 | 1.1450 | 3.4169 | 0.0056 | 0.0781 | 560 | 0.0276 |
| 2022 | 2022Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0867 | 0.4464 | 0.5301 | 0.0016 | 0.0199 | 152 | 0.0078 |
| 2022 | 2022Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0496 | 0.2950 | 0.2260 | 0.0004 | 0.0103 | 30.3 | 0.0045 |
| 2022 | 2022Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0499 | 0.4085 | 0.3124 | 0.0007 | 0.0185 | 60.7 | 0.0045 |
| 2022 | 2022Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0785 | 0.7167 | 0.4349 | 0.0014 | 0.0228 | 122 | 0.0071 |
| 2022 | 2022Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0741 | 0.2939 | 0.4252 | 0.0016 | 0.0139 | 145 | 0.0067 |
| 2022 | 2022Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0959 | 0.3697 | 0.5110 | 0.0019 | 0.0178 | 192 | 0.0087 |
| 2022 | 2022Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.4384 | 1.5111 | 4.5177 | 0.0073 | 0.1032 | 741 | 0.0396 |
| 2022 | 2022Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0813 | 0.4378 | 0.5158 | 0.0015 | 0.0191 | 141 | 0.0073 |
| 2022 | 2022Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1424 | 0.0002 | 0.0054 | 18.7 | 0.0020 |
| 2022 | 2022Pavers50 | Pavers | 50 | 0.0718 | 0.2941 | 0.2269 | 0.0004 | 0.0154 | 28.0 | 0.0065 |
| 2022 | 2022Pavers120 | Pavers | 120 | 0.0802 | 0.4756 | 0.4824 | 0.0008 | 0.0357 | 69.2 | 0.0072 |
| 2022 | 2022Pavers175 | Pavers | 175 | 0.1081 | 0.7573 | 0.6894 | 0.0014 | 0.0385 | 128 | 0.0098 |
| 2022 | 2022Pavers250 | Pavers | 250 | 0.1271 | 0.4502 | 0.9303 | 0.0022 | 0.0337 | 194 | 0.0115 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 2022Pavers500 | Pavers | 500 | 0.1447 | 0.5863 | 1.0011 | 0.0023 | 0.0374 | 233 | 0.0131 |
| 2022 | 2022Pavers Composite | Pavers Composite | | 0.0870 | 0.4840 | 0.4750 | 0.0009 | 0.0296 | 77.9 | 0.0078 |
| 2022 | 2022Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2022 | 2022Paving Equipment50 | Paving Equipment | 50 | 0.0598 | 0.2475 | 0.1933 | 0.0003 | 0.0130 | 23.9 | 0.0054 |
| 2022 | 2022Paving Equipment120 | Paving Equipment | 120 | 0.0619 | 0.3722 | 0.3757 | 0.0006 | 0.0279 | 54.5 | 0.0056 |
| 2022 | 2022Paving Equipment175 | Paving Equipment | 175 | 0.0834 | 0.5924 | 0.5361 | 0.0011 | 0.0299 | 101 | 0.0075 |
| 2022 | 2022Paving Equipment250 | Paving Equipment | 250 | 0.0779 | 0.2771 | 0.5769 | 0.0014 | 0.0206 | 122 | 0.0070 |
| 2022 | 2022Paving Equipment Composite | Paving Equipment Composite | | 0.0666 | 0.4042 | 0.4137 | 0.0008 | 0.0261 | 68.9 | 0.0060 |
| 2022 | 2022Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2022 | 2022Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2022 | 2022Pressure Washers15 | Pressure Washers | 15 | 0.0054 | 0.0303 | 0.0379 | 0.0001 | 0.0017 | 4.9 | 0.0005 |
| 2022 | 2022Pressure Washers25 | Pressure Washers | 25 | 0.0089 | 0.0306 | 0.0563 | 0.0001 | 0.0024 | 7.1 | 0.0008 |
| 2022 | 2022Pressure Washers50 | Pressure Washers | 50 | 0.0103 | 0.0831 | 0.0920 | 0.0002 | 0.0030 | 14.3 | 0.0009 |
| 2022 | 2022Pressure Washers120 | Pressure Washers | 120 | 0.0104 | 0.1358 | 0.1094 | 0.0003 | 0.0049 | 24.1 | 0.0009 |
| 2022 | 2022Pressure Washers Composite | Pressure Washers Composite | | 0.0075 | 0.0539 | 0.0606 | 0.0001 | 0.0024 | 9.4 | 0.0007 |
| 2022 | 2022Pumps15 | Pumps | 15 | 0.0093 | 0.0460 | 0.0577 | 0.0001 | 0.0027 | 7.4 | 0.0008 |
| 2022 | 2022Pumps25 | Pumps | 25 | 0.0255 | 0.0834 | 0.1535 | 0.0002 | 0.0067 | 19.5 | 0.0023 |
| 2022 | 2022Pumps50 | Pumps | 50 | 0.0380 | 0.2459 | 0.2331 | 0.0004 | 0.0094 | 34.3 | 0.0034 |
| 2022 | 2022Pumps120 | Pumps | 120 | 0.0449 | 0.4676 | 0.3749 | 0.0009 | 0.0199 | 77.9 | 0.0040 |
| 2022 | 2022Pumps175 | Pumps | 175 | 0.0608 | 0.7328 | 0.4650 | 0.0016 | 0.0214 | 140 | 0.0055 |
| 2022 | 2022Pumps250 | Pumps | 250 | 0.0668 | 0.3640 | 0.5526 | 0.0023 | 0.0165 | 201 | 0.0060 |
| 2022 | 2022Pumps500 | Pumps | 500 | 0.1105 | 0.6094 | 0.8662 | 0.0034 | 0.0274 | 345 | 0.0100 |
| 2022 | 2022Pumps750 | Pumps | 750 | 0.1841 | 1.0074 | 1.4611 | 0.0057 | 0.0458 | 571 | 0.0166 |
| 2022 | 2022Pumps9999 | Pumps | 9999 | 0.5293 | 2.5333 | 7.7698 | 0.0136 | 0.1590 | 1,355 | 0.0478 |
| 2022 | 2022Pumps Composite | Pumps Composite | | 0.0322 | 0.2640 | 0.2467 | 0.0006 | 0.0114 | 49.6 | 0.0029 |
| 2022 | 2022Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2022 | 2022Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2022 | 2022Rollers50 | Rollers | 50 | 0.0444 | 0.2347 | 0.1923 | 0.0003 | 0.0101 | 26.0 | 0.0040 |
| 2022 | 2022Rollers120 | Rollers | 120 | 0.0486 | 0.3836 | 0.3270 | 0.0007 | 0.0207 | 59.0 | 0.0044 |
| 2022 | 2022Rollers175 | Rollers | 175 | 0.0669 | 0.6103 | 0.4265 | 0.0012 | 0.0225 | 108 | 0.0060 |
| 2022 | 2022Rollers250 | Rollers | 250 | 0.0760 | 0.3121 | 0.5217 | 0.0017 | 0.0180 | 153 | 0.0069 |
| 2022 | 2022Rollers500 | Rollers | 500 | 0.1052 | 0.4391 | 0.6689 | 0.0022 | 0.0243 | 219 | 0.0095 |
| 2022 | 2022Rollers Composite | Rollers Composite | | 0.0500 | 0.3799 | 0.3198 | 0.0008 | 0.0181 | 67.0 | 0.0045 |
| 2022 | 2022Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0447 | 0.3102 | 0.2394 | 0.0004 | 0.0088 | 33.9 | 0.0040 |
| 2022 | 2022Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0433 | 0.4122 | 0.2827 | 0.0007 | 0.0144 | 62.4 | 0.0039 |
| 2022 | 2022Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0689 | 0.7228 | 0.3608 | 0.0014 | 0.0184 | 125 | 0.0062 |
| 2022 | 2022Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0786 | 0.3401 | 0.4010 | 0.0019 | 0.0137 | 171 | 0.0071 |
| 2022 | 2022Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1164 | 0.4879 | 0.5561 | 0.0025 | 0.0200 | 257 | 0.0105 |
| 2022 | 2022Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0467 | 0.4445 | 0.2924 | 0.0008 | 0.0148 | 70.3 | 0.0042 |
| 2022 | 2022Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1359 | 0.8073 | 0.8630 | 0.0015 | 0.0485 | 129 | 0.0123 |
| 2022 | 2022Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1536 | 0.4976 | 1.1128 | 0.0021 | 0.0437 | 183 | 0.0139 |
| 2022 | 2022Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2081 | 0.8431 | 1.4541 | 0.0026 | 0.0573 | 265 | 0.0188 |
| 2022 | 2022Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3144 | 1.2669 | 2.2402 | 0.0040 | 0.0873 | 399 | 0.0284 |
| 2022 | 2022Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4949 | 2.0395 | 5.1053 | 0.0060 | 0.1466 | 592 | 0.0447 |
| 2022 | 2022Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1919 | 0.7353 | 1.3612 | 0.0025 | 0.0536 | 239 | 0.0173 |
| 2022 | 2022Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2022 | 2022Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0515 | 0.2990 | 0.2280 | 0.0004 | 0.0105 | 31.1 | 0.0046 |
| 2022 | 2022Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0482 | 0.3946 | 0.3036 | 0.0007 | 0.0178 | 58.9 | 0.0043 |
| 2022 | 2022Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0662 | 0.6207 | 0.3719 | 0.0012 | 0.0194 | 106 | 0.0060 |
| 2022 | 2022Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0763 | 0.3102 | 0.4423 | 0.0017 | 0.0154 | 149 | 0.0069 |
| 2022 | 2022Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1181 | 0.4837 | 0.6348 | 0.0023 | 0.0232 | 237 | 0.0107 |
| 2022 | 2022Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2426 | 0.9905 | 1.3313 | 0.0049 | 0.0481 | 486 | 0.0219 |
| 2022 | 2022Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.3127 | 1.2515 | 3.6383 | 0.0060 | 0.0813 | 594 | 0.0282 |
| 2022 | 2022Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0661 | 0.4359 | 0.3849 | 0.0012 | 0.0181 | 109 | 0.0060 |
| 2022 | 2022Scrapers120 | Scrapers | 120 | 0.1071 | 0.6549 | 0.6300 | 0.0011 | 0.0454 | 93.9 | 0.0097 |
| 2022 | 2022Scrapers175 | Scrapers | 175 | 0.1235 | 0.8895 | 0.7529 | 0.0017 | 0.0417 | 148 | 0.0111 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 2022Scrapers250 | Scrapers | 250 | 0.1369 | 0.4844 | 0.9425 | 0.0024 | 0.0340 | 209 | 0.0123 |
| 2022 | 2022Scrapers500 | Scrapers | 500 | 0.2003 | 0.7920 | 1.2973 | 0.0032 | 0.0483 | 321 | 0.0181 |
| 2022 | 2022Scrapers750 | Scrapers | 750 | 0.3476 | 1.3669 | 2.3064 | 0.0056 | 0.0848 | 555 | 0.0314 |
| 2022 | 2022Scrapers Composite | Scrapers Composite | | 0.1724 | 0.7579 | 1.1177 | 0.0027 | 0.0447 | 262 | 0.0156 |
| 2022 | 2022Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2022 | 2022Signal Boards50 | Signal Boards | 50 | 0.0417 | 0.2755 | 0.2471 | 0.0005 | 0.0098 | 36.2 | 0.0038 |
| 2022 | 2022Signal Boards120 | Signal Boards | 120 | 0.0477 | 0.4918 | 0.3767 | 0.0009 | 0.0200 | 80.2 | 0.0043 |
| 2022 | 2022Signal Boards175 | Signal Boards | 175 | 0.0707 | 0.8279 | 0.4898 | 0.0017 | 0.0235 | 155 | 0.0064 |
| 2022 | 2022Signal Boards250 | Signal Boards | 250 | 0.0919 | 0.4710 | 0.6627 | 0.0029 | 0.0206 | 255 | 0.0083 |
| 2022 | 2022Signal Boards Composite | Signal Boards Composite | | 0.0121 | 0.0910 | 0.0818 | 0.0002 | 0.0036 | 16.7 | 0.0011 |
| 2022 | 2022Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0168 | 0.0570 | 0.1062 | 0.0002 | 0.0042 | 13.8 | 0.0015 |
| 2022 | 2022Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0211 | 0.1991 | 0.1551 | 0.0003 | 0.0029 | 25.5 | 0.0019 |
| 2022 | 2022Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0197 | 0.2669 | 0.1446 | 0.0005 | 0.0043 | 42.8 | 0.0018 |
| 2022 | 2022Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0204 | 0.2114 | 0.1485 | 0.0004 | 0.0034 | 30.3 | 0.0018 |
| 2022 | 2022Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0221 | 0.1150 | 0.1008 | 0.0002 | 0.0051 | 14.1 | 0.0020 |
| 2022 | 2022Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0484 | 0.3991 | 0.3507 | 0.0007 | 0.0215 | 63.8 | 0.0044 |
| 2022 | 2022Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0474 | 0.4653 | 0.3377 | 0.0010 | 0.0169 | 85.8 | 0.0043 |
| 2022 | 2022Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0585 | 0.2682 | 0.4607 | 0.0015 | 0.0154 | 135 | 0.0053 |
| 2022 | 2022Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0915 | 0.4491 | 0.6786 | 0.0022 | 0.0236 | 221 | 0.0083 |
| 2022 | 2022Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1447 | 0.7042 | 1.0950 | 0.0035 | 0.0376 | 347 | 0.0131 |
| 2022 | 2022Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0739 | 0.3778 | 0.5368 | 0.0017 | 0.0195 | 166 | 0.0067 |
| 2022 | 2022Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2022 | 2022Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2022 | 2022Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0362 | 0.2815 | 0.2173 | 0.0004 | 0.0067 | 31.6 | 0.0033 |
| 2022 | 2022Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0475 | 0.4919 | 0.3133 | 0.0009 | 0.0141 | 75.0 | 0.0043 |
| 2022 | 2022Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0716 | 0.8013 | 0.3643 | 0.0016 | 0.0169 | 139 | 0.0065 |
| 2022 | 2022Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0696 | 0.3182 | 0.3224 | 0.0018 | 0.0101 | 162 | 0.0063 |
| 2022 | 2022Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0498 | 0.4867 | 0.2947 | 0.0009 | 0.0124 | 78.5 | 0.0045 |
| 2022 | 2022Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2022 | 2022Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0354 | 0.2713 | 0.2045 | 0.0004 | 0.0062 | 30.3 | 0.0032 |
| 2022 | 2022Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0320 | 0.3388 | 0.2113 | 0.0006 | 0.0090 | 51.7 | 0.0029 |
| 2022 | 2022Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0499 | 0.5840 | 0.2431 | 0.0011 | 0.0116 | 101 | 0.0045 |
| 2022 | 2022Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0728 | 0.3417 | 0.3287 | 0.0019 | 0.0113 | 172 | 0.0066 |
| 2022 | 2022Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1447 | 0.6562 | 0.6144 | 0.0039 | 0.0221 | 345 | 0.0131 |
| 2022 | 2022Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2170 | 0.9841 | 0.9320 | 0.0058 | 0.0334 | 517 | 0.0196 |
| 2022 | 2022Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0384 | 0.3599 | 0.2302 | 0.0008 | 0.0095 | 66.8 | 0.0035 |
| 2022 | 2022Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2022 | 2022Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2022 | 2022Trenchers50 | Trenchers | 50 | 0.0856 | 0.3361 | 0.2658 | 0.0004 | 0.0185 | 32.9 | 0.0077 |
| 2022 | 2022Trenchers120 | Trenchers | 120 | 0.0751 | 0.4397 | 0.4624 | 0.0008 | 0.0344 | 64.9 | 0.0068 |
| 2022 | 2022Trenchers175 | Trenchers | 175 | 0.1201 | 0.8361 | 0.7981 | 0.0016 | 0.0442 | 144 | 0.0108 |
| 2022 | 2022Trenchers250 | Trenchers | 250 | 0.1441 | 0.5202 | 1.1070 | 0.0025 | 0.0407 | 223 | 0.0130 |
| 2022 | 2022Trenchers500 | Trenchers | 500 | 0.1899 | 0.8063 | 1.3903 | 0.0031 | 0.0523 | 311 | 0.0171 |
| 2022 | 2022Trenchers750 | Trenchers | 750 | 0.3599 | 1.5183 | 2.6930 | 0.0059 | 0.0999 | 587 | 0.0325 |
| 2022 | 2022Trenchers Composite | Trenchers Composite | | 0.0819 | 0.4186 | 0.4094 | 0.0007 | 0.0284 | 58.7 | 0.0074 |
| 2022 | 2022Welders15 | Welders | 15 | 0.0078 | 0.0385 | 0.0483 | 0.0001 | 0.0022 | 6.2 | 0.0007 |
| 2022 | 2022Welders25 | Welders | 25 | 0.0147 | 0.0483 | 0.0889 | 0.0001 | 0.0039 | 11.3 | 0.0013 |
| 2022 | 2022Welders50 | Welders | 50 | 0.0354 | 0.2134 | 0.1836 | 0.0003 | 0.0082 | 26.0 | 0.0032 |
| 2022 | 2022Welders120 | Welders | 120 | 0.0270 | 0.2486 | 0.1970 | 0.0005 | 0.0114 | 39.5 | 0.0024 |
| 2022 | 2022Welders175 | Welders | 175 | 0.0517 | 0.5385 | 0.3390 | 0.0011 | 0.0171 | 98.2 | 0.0047 |
| 2022 | 2022Welders250 | Welders | 250 | 0.0489 | 0.2256 | 0.3404 | 0.0013 | 0.0108 | 119 | 0.0044 |
| 2022 | 2022Welders500 | Welders | 500 | 0.0671 | 0.3068 | 0.4355 | 0.0016 | 0.0147 | 168 | 0.0061 |
| 2022 | 2022Welders Composite | Welders Composite | | 0.0260 | 0.1773 | 0.1557 | 0.0003 | 0.0078 | 25.6 | 0.0023 |
| 2023 | 2023Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2023 | 2023Aerial Lifts25 | Aerial Lifts | 25 | 0.0133 | 0.0452 | 0.0842 | 0.0001 | 0.0033 | 11.0 | 0.0012 |
| 2023 | 2023Aerial Lifts50 | Aerial Lifts | 50 | 0.0196 | 0.1373 | 0.1289 | 0.0003 | 0.0046 | 19.6 | 0.0018 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Aerial Lifts120 | Aerial Lifts | 120 | 0.0201 | 0.2271 | 0.1697 | 0.0004 | 0.0084 | 38.1 | 0.0018 |
| 2023 | 2023Aerial Lifts500 | Aerial Lifts | 500 | 0.0637 | 0.3732 | 0.4746 | 0.0021 | 0.0146 | 213 | 0.0058 |
| 2023 | 2023Aerial Lifts750 | Aerial Lifts | 750 | 0.1160 | 0.6746 | 0.8754 | 0.0039 | 0.0268 | 385 | 0.0105 |
| 2023 | 2023Aerial Lifts Composite | Aerial Lifts Composite | | 0.0208 | 0.1658 | 0.1525 | 0.0004 | 0.0062 | 34.7 | 0.0019 |
| 2023 | 2023Air Compressors15 | Air Compressors | 15 | 0.0089 | 0.0446 | 0.0555 | 0.0001 | 0.0025 | 7.2 | 0.0008 |
| 2023 | 2023Air Compressors25 | Air Compressors | 25 | 0.0186 | 0.0613 | 0.1132 | 0.0002 | 0.0048 | 14.4 | 0.0017 |
| 2023 | 2023Air Compressors50 | Air Compressors | 50 | 0.0301 | 0.1936 | 0.1563 | 0.0003 | 0.0063 | 22.3 | 0.0027 |
| 2023 | 2023Air Compressors120 | Air Compressors | 120 | 0.0325 | 0.3027 | 0.2194 | 0.0006 | 0.0121 | 47.0 | 0.0029 |
| 2023 | 2023Air Compressors175 | Air Compressors | 175 | 0.0478 | 0.4985 | 0.2761 | 0.0010 | 0.0141 | 88.5 | 0.0043 |
| 2023 | 2023Air Compressors250 | Air Compressors | 250 | 0.0567 | 0.2542 | 0.3336 | 0.0015 | 0.0108 | 131 | 0.0051 |
| 2023 | 2023Air Compressors500 | Air Compressors | 500 | 0.0981 | 0.4312 | 0.5407 | 0.0023 | 0.0184 | 232 | 0.0089 |
| 2023 | 2023Air Compressors750 | Air Compressors | 750 | 0.1520 | 0.6663 | 0.8527 | 0.0036 | 0.0288 | 358 | 0.0137 |
| 2023 | 2023Air Compressors1000 | Air Compressors | 1000 | 0.2215 | 0.9472 | 2.7762 | 0.0049 | 0.0592 | 486 | 0.0200 |
| 2023 | 2023Air Compressors Composite | Air Compressors Composite | | 0.0390 | 0.3035 | 0.2459 | 0.0007 | 0.0119 | 63.6 | 0.0035 |
| 2023 | 2023Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2023 | 2023Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2023 | 2023Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0191 | 0.2200 | 0.1672 | 0.0004 | 0.0010 | 31.0 | 0.0017 |
| 2023 | 2023Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0256 | 0.4660 | 0.2018 | 0.0009 | 0.0023 | 77.1 | 0.0023 |
| 2023 | 2023Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0337 | 0.7541 | 0.0966 | 0.0016 | 0.0033 | 141 | 0.0030 |
| 2023 | 2023Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0432 | 0.3426 | 0.1058 | 0.0021 | 0.0038 | 188 | 0.0039 |
| 2023 | 2023Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0716 | 0.5512 | 0.1739 | 0.0031 | 0.0062 | 311 | 0.0065 |
| 2023 | 2023Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1414 | 1.0890 | 0.3438 | 0.0062 | 0.0123 | 615 | 0.0128 |
| 2023 | 2023Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2174 | 1.6434 | 3.9139 | 0.0093 | 0.0395 | 928 | 0.0196 |
| 2023 | 2023Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0436 | 0.5007 | 0.2949 | 0.0017 | 0.0045 | 165 | 0.0039 |
| 2023 | 2023Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2023 | 2023Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0216 | 0.0728 | 0.1354 | 0.0002 | 0.0053 | 17.6 | 0.0019 |
| 2023 | 2023Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2023 | 2023Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2023 | 2023Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0322 | 0.2324 | 0.2028 | 0.0004 | 0.0072 | 30.2 | 0.0029 |
| 2023 | 2023Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0418 | 0.4576 | 0.3234 | 0.0009 | 0.0162 | 74.1 | 0.0038 |
| 2023 | 2023Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0707 | 0.8662 | 0.4509 | 0.0018 | 0.0219 | 160 | 0.0064 |
| 2023 | 2023Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0382 | 0.3728 | 0.2767 | 0.0007 | 0.0127 | 58.5 | 0.0034 |
| 2023 | 2023Cranes50 | Cranes | 50 | 0.0402 | 0.2305 | 0.1733 | 0.0003 | 0.0082 | 23.2 | 0.0036 |
| 2023 | 2023Cranes120 | Cranes | 120 | 0.0426 | 0.3401 | 0.2642 | 0.0006 | 0.0158 | 50.1 | 0.0038 |
| 2023 | 2023Cranes175 | Cranes | 175 | 0.0522 | 0.4746 | 0.2894 | 0.0009 | 0.0153 | 80.3 | 0.0047 |
| 2023 | 2023Cranes250 | Cranes | 250 | 0.0600 | 0.2354 | 0.3458 | 0.0013 | 0.0120 | 112 | 0.0054 |
| 2023 | 2023Cranes500 | Cranes | 500 | 0.0940 | 0.3610 | 0.5013 | 0.0018 | 0.0185 | 180 | 0.0085 |
| 2023 | 2023Cranes750 | Cranes | 750 | 0.1583 | 0.6073 | 0.8613 | 0.0030 | 0.0314 | 303 | 0.0143 |
| 2023 | 2023Cranes9999 | Cranes | 9999 | 0.5757 | 2.0307 | 6.0792 | 0.0098 | 0.1373 | 971 | 0.0519 |
| 2023 | 2023Cranes Composite | Cranes Composite | | 0.0754 | 0.3786 | 0.5028 | 0.0014 | 0.0181 | 129 | 0.0068 |
| 2023 | 2023Crawler Tractors50 | Crawler Tractors | 50 | 0.0560 | 0.2636 | 0.1936 | 0.0003 | 0.0111 | 24.9 | 0.0051 |
| 2023 | 2023Crawler Tractors120 | Crawler Tractors | 120 | 0.0687 | 0.4568 | 0.4030 | 0.0008 | 0.0274 | 65.8 | 0.0062 |
| 2023 | 2023Crawler Tractors175 | Crawler Tractors | 175 | 0.0929 | 0.7277 | 0.5402 | 0.0014 | 0.0297 | 121 | 0.0084 |
| 2023 | 2023Crawler Tractors250 | Crawler Tractors | 250 | 0.1013 | 0.3749 | 0.6513 | 0.0019 | 0.0233 | 166 | 0.0091 |
| 2023 | 2023Crawler Tractors500 | Crawler Tractors | 500 | 0.1515 | 0.6117 | 0.9142 | 0.0025 | 0.0339 | 259 | 0.0137 |
| 2023 | 2023Crawler Tractors750 | Crawler Tractors | 750 | 0.2728 | 1.0957 | 1.6867 | 0.0047 | 0.0617 | 465 | 0.0246 |
| 2023 | 2023Crawler Tractors1000 | Crawler Tractors | 1000 | 0.4130 | 1.6547 | 4.5686 | 0.0066 | 0.1123 | 658 | 0.0373 |
| 2023 | 2023Crawler Tractors Composite | Crawler Tractors Composite | | 0.0879 | 0.5125 | 0.5291 | 0.0013 | 0.0280 | 114 | 0.0079 |
| 2023 | 2023Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0573 | 0.3903 | 0.3069 | 0.0006 | 0.0114 | 44.0 | 0.0052 |
| 2023 | 2023Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0564 | 0.5413 | 0.3734 | 0.0010 | 0.0193 | 83.1 | 0.0051 |
| 2023 | 2023Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0897 | 0.9538 | 0.4869 | 0.0019 | 0.0245 | 167 | 0.0081 |
| 2023 | 2023Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1068 | 0.4783 | 0.5727 | 0.0028 | 0.0186 | 245 | 0.0096 |
| 2023 | 2023Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1605 | 0.7002 | 0.8070 | 0.0037 | 0.0276 | 374 | 0.0145 |
| 2023 | 2023Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2534 | 1.1039 | 1.2978 | 0.0059 | 0.0437 | 589 | 0.0229 |
| 2023 | 2023Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6617 | 2.5491 | 7.2745 | 0.0131 | 0.1522 | 1,308 | 0.0597 |
| 2023 | 2023Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0773 | 0.6199 | 0.4479 | 0.0015 | 0.0201 | 132 | 0.0070 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2023 | 2023Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2023 | 2023Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2023 | 2023Excavators50 | Excavators | 50 | 0.0320 | 0.2387 | 0.1699 | 0.0003 | 0.0049 | 25.0 | 0.0029 |
| 2023 | 2023Excavators120 | Excavators | 120 | 0.0487 | 0.4952 | 0.2967 | 0.0009 | 0.0126 | 73.6 | 0.0044 |
| 2023 | 2023Excavators175 | Excavators | 175 | 0.0578 | 0.6636 | 0.2573 | 0.0013 | 0.0125 | 112 | 0.0052 |
| 2023 | 2023Excavators250 | Excavators | 250 | 0.0707 | 0.3230 | 0.2915 | 0.0018 | 0.0100 | 159 | 0.0064 |
| 2023 | 2023Excavators500 | Excavators | 500 | 0.1031 | 0.4522 | 0.4014 | 0.0023 | 0.0144 | 234 | 0.0093 |
| 2023 | 2023Excavators750 | Excavators | 750 | 0.1710 | 0.7495 | 0.6744 | 0.0039 | 0.0240 | 387 | 0.0154 |
| 2023 | 2023Excavators Composite | Excavators Composite | | 0.0615 | 0.5097 | 0.2821 | 0.0013 | 0.0117 | 120 | 0.0055 |
| 2023 | 2023Forklifts50 | Forklifts | 50 | 0.0159 | 0.1363 | 0.0954 | 0.0002 | 0.0020 | 14.7 | 0.0014 |
| 2023 | 2023Forklifts120 | Forklifts | 120 | 0.0183 | 0.2086 | 0.1134 | 0.0004 | 0.0035 | 31.2 | 0.0017 |
| 2023 | 2023Forklifts175 | Forklifts | 175 | 0.0260 | 0.3305 | 0.1074 | 0.0006 | 0.0040 | 56.1 | 0.0023 |
| 2023 | 2023Forklifts250 | Forklifts | 250 | 0.0315 | 0.1549 | 0.1069 | 0.0009 | 0.0033 | 77.1 | 0.0028 |
| 2023 | 2023Forklifts500 | Forklifts | 500 | 0.0451 | 0.2120 | 0.1455 | 0.0011 | 0.0047 | 111 | 0.0041 |
| 2023 | 2023Forklifts Composite | Forklifts Composite | | 0.0259 | 0.2146 | 0.1108 | 0.0006 | 0.0035 | 54.4 | 0.0023 |
| 2023 | 2023Generator Sets15 | Generator Sets | 15 | 0.0111 | 0.0631 | 0.0782 | 0.0002 | 0.0034 | 10.2 | 0.0010 |
| 2023 | 2023Generator Sets25 | Generator Sets | 25 | 0.0218 | 0.0748 | 0.1381 | 0.0002 | 0.0057 | 17.6 | 0.0020 |
| 2023 | 2023Generator Sets50 | Generator Sets | 50 | 0.0284 | 0.2068 | 0.1992 | 0.0004 | 0.0068 | 30.6 | 0.0026 |
| 2023 | 2023Generator Sets120 | Generator Sets | 120 | 0.0390 | 0.4597 | 0.3429 | 0.0009 | 0.0164 | 77.9 | 0.0035 |
| 2023 | 2023Generator Sets175 | Generator Sets | 175 | 0.0536 | 0.7319 | 0.4144 | 0.0016 | 0.0181 | 142 | 0.0048 |
| 2023 | 2023Generator Sets250 | Generator Sets | 250 | 0.0620 | 0.3769 | 0.5050 | 0.0024 | 0.0146 | 213 | 0.0056 |
| 2023 | 2023Generator Sets500 | Generator Sets | 500 | 0.0951 | 0.5855 | 0.7401 | 0.0033 | 0.0225 | 337 | 0.0086 |
| 2023 | 2023Generator Sets750 | Generator Sets | 750 | 0.1548 | 0.9452 | 1.2186 | 0.0055 | 0.0367 | 544 | 0.0140 |
| 2023 | 2023Generator Sets9999 | Generator Sets | 9999 | 0.3628 | 1.9093 | 5.6803 | 0.0105 | 0.1086 | 1,049 | 0.0327 |
| 2023 | 2023Generator Sets Composite | Generator Sets Composite | | 0.0321 | 0.2683 | 0.2612 | 0.0007 | 0.0103 | 61.0 | 0.0029 |
| 2023 | 2023Graders50 | Graders | 50 | 0.0438 | 0.2649 | 0.1973 | 0.0004 | 0.0083 | 27.5 | 0.0040 |
| 2023 | 2023Graders120 | Graders | 120 | 0.0592 | 0.5035 | 0.3674 | 0.0009 | 0.0205 | 75.0 | 0.0053 |
| 2023 | 2023Graders175 | Graders | 175 | 0.0740 | 0.7268 | 0.3960 | 0.0014 | 0.0205 | 124 | 0.0067 |
| 2023 | 2023Graders250 | Graders | 250 | 0.0856 | 0.3591 | 0.4670 | 0.0019 | 0.0163 | 172 | 0.0077 |
| 2023 | 2023Graders500 | Graders | 500 | 0.1113 | 0.4726 | 0.5631 | 0.0023 | 0.0207 | 229 | 0.0100 |
| 2023 | 2023Graders750 | Graders | 750 | 0.2361 | 0.9999 | 1.2212 | 0.0049 | 0.0443 | 486 | 0.0213 |
| 2023 | 2023Graders Composite | Graders Composite | | 0.0758 | 0.5718 | 0.4156 | 0.0015 | 0.0191 | 133 | 0.0068 |
| 2023 | 2023Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1235 | 0.6678 | 0.7110 | 0.0011 | 0.0536 | 93.7 | 0.0111 |
| 2023 | 2023Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1237 | 0.7961 | 0.7762 | 0.0015 | 0.0435 | 130 | 0.0112 |
| 2023 | 2023Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0980 | 0.3323 | 0.7020 | 0.0015 | 0.0269 | 130 | 0.0088 |
| 2023 | 2023Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.4042 | 1.6484 | 2.8322 | 0.0057 | 0.1085 | 568 | 0.0365 |
| 2023 | 2023Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.6171 | 2.5586 | 6.5771 | 0.0082 | 0.1808 | 814 | 0.0557 |
| 2023 | 2023Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1255 | 0.6238 | 0.8516 | 0.0017 | 0.0391 | 151 | 0.0113 |
| 2023 | 2023Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0692 | 0.7536 | 0.3068 | 0.0014 | 0.0152 | 125 | 0.0062 |
| 2023 | 2023Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0796 | 0.3458 | 0.3302 | 0.0019 | 0.0114 | 167 | 0.0072 |
| 2023 | 2023Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1287 | 0.5355 | 0.5023 | 0.0027 | 0.0182 | 272 | 0.0116 |
| 2023 | 2023Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2090 | 0.8685 | 0.8270 | 0.0044 | 0.0297 | 442 | 0.0189 |
| 2023 | 2023Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.3089 | 1.2561 | 3.3947 | 0.0063 | 0.0663 | 625 | 0.0279 |
| 2023 | 2023Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1243 | 0.5422 | 0.5881 | 0.0027 | 0.0188 | 260 | 0.0112 |
| 2023 | 2023Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2023 | 2023Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2023 | 2023Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0267 | 0.2209 | 0.1783 | 0.0004 | 0.0047 | 28.0 | 0.0024 |
| 2023 | 2023Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0416 | 0.5054 | 0.3051 | 0.0009 | 0.0122 | 80.9 | 0.0038 |
| 2023 | 2023Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0432 | 0.5857 | 0.2259 | 0.0012 | 0.0105 | 107 | 0.0039 |
| 2023 | 2023Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0869 | 0.4622 | 0.4007 | 0.0025 | 0.0137 | 254 | 0.0078 |
| 2023 | 2023Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0483 | 0.3482 | 0.2497 | 0.0013 | 0.0092 | 123 | 0.0044 |
| 2023 | 2023Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2023 | 2023Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2023 | 2023Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0336 | 0.2124 | 0.1578 | 0.0003 | 0.0063 | 21.7 | 0.0030 |
| 2023 | 2023Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0486 | 0.4194 | 0.2962 | 0.0007 | 0.0164 | 62.0 | 0.0044 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0585 | 0.5669 | 0.3049 | 0.0011 | 0.0156 | 95.9 | 0.0053 |
| 2023 | 2023Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0668 | 0.2755 | 0.3496 | 0.0015 | 0.0113 | 136 | 0.0060 |
| 2023 | 2023Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1284 | 0.5127 | 0.6281 | 0.0026 | 0.0215 | 265 | 0.0116 |
| 2023 | 2023Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2122 | 0.8450 | 1.0564 | 0.0044 | 0.0358 | 437 | 0.0191 |
| 2023 | 2023Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2905 | 1.1303 | 3.2598 | 0.0056 | 0.0709 | 560 | 0.0262 |
| 2023 | 2023Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0824 | 0.4454 | 0.4807 | 0.0016 | 0.0174 | 152 | 0.0074 |
| 2023 | 2023Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0463 | 0.2927 | 0.2194 | 0.0004 | 0.0088 | 30.3 | 0.0042 |
| 2023 | 2023Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0470 | 0.4081 | 0.2892 | 0.0007 | 0.0160 | 60.7 | 0.0042 |
| 2023 | 2023Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0738 | 0.7178 | 0.3878 | 0.0014 | 0.0199 | 122 | 0.0067 |
| 2023 | 2023Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0706 | 0.2931 | 0.3737 | 0.0016 | 0.0121 | 145 | 0.0064 |
| 2023 | 2023Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0916 | 0.3687 | 0.4532 | 0.0019 | 0.0155 | 192 | 0.0083 |
| 2023 | 2023Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.4172 | 1.4917 | 4.3096 | 0.0073 | 0.0937 | 741 | 0.0376 |
| 2023 | 2023Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0771 | 0.4369 | 0.4671 | 0.0015 | 0.0167 | 141 | 0.0070 |
| 2023 | 2023Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1423 | 0.0002 | 0.0054 | 18.7 | 0.0020 |
| 2023 | 2023Pavers50 | Pavers | 50 | 0.0666 | 0.2890 | 0.2210 | 0.0004 | 0.0140 | 28.0 | 0.0060 |
| 2023 | 2023Pavers120 | Pavers | 120 | 0.0753 | 0.4735 | 0.4531 | 0.0008 | 0.0323 | 69.2 | 0.0068 |
| 2023 | 2023Pavers175 | Pavers | 175 | 0.1017 | 0.7562 | 0.6305 | 0.0014 | 0.0350 | 128 | 0.0092 |
| 2023 | 2023Pavers250 | Pavers | 250 | 0.1208 | 0.4419 | 0.8488 | 0.0022 | 0.0307 | 194 | 0.0109 |
| 2023 | 2023Pavers500 | Pavers | 500 | 0.1380 | 0.5680 | 0.9135 | 0.0023 | 0.0341 | 233 | 0.0125 |
| 2023 | 2023Pavers Composite | Pavers Composite | | 0.0815 | 0.4805 | 0.4432 | 0.0009 | 0.0269 | 77.9 | 0.0074 |
| 2023 | 2023Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2023 | 2023Paving Equipment50 | Paving Equipment | 50 | 0.0551 | 0.2431 | 0.1882 | 0.0003 | 0.0118 | 23.9 | 0.0050 |
| 2023 | 2023Paving Equipment120 | Paving Equipment | 120 | 0.0578 | 0.3703 | 0.3520 | 0.0006 | 0.0251 | 54.5 | 0.0052 |
| 2023 | 2023Paving Equipment175 | Paving Equipment | 175 | 0.0782 | 0.5915 | 0.4884 | 0.0011 | 0.0271 | 101 | 0.0071 |
| 2023 | 2023Paving Equipment250 | Paving Equipment | 250 | 0.0741 | 0.2724 | 0.5241 | 0.0014 | 0.0187 | 122 | 0.0067 |
| 2023 | 2023Paving Equipment Composite | Paving Equipment Composite | | 0.0624 | 0.4024 | 0.3832 | 0.0008 | 0.0236 | 68.9 | 0.0056 |
| 2023 | 2023Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2023 | 2023Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2023 | 2023Pressure Washers15 | Pressure Washers | 15 | 0.0053 | 0.0302 | 0.0375 | 0.0001 | 0.0016 | 4.9 | 0.0005 |
| 2023 | 2023Pressure Washers25 | Pressure Washers | 25 | 0.0088 | 0.0303 | 0.0560 | 0.0001 | 0.0023 | 7.1 | 0.0008 |
| 2023 | 2023Pressure Washers50 | Pressure Washers | 50 | 0.0093 | 0.0823 | 0.0893 | 0.0002 | 0.0026 | 14.3 | 0.0008 |
| 2023 | 2023Pressure Washers120 | Pressure Washers | 120 | 0.0096 | 0.1355 | 0.1015 | 0.0003 | 0.0042 | 24.1 | 0.0009 |
| 2023 | 2023Pressure Washers Composite | Pressure Washers Composite | | 0.0072 | 0.0536 | 0.0589 | 0.0001 | 0.0022 | 9.4 | 0.0006 |
| 2023 | 2023Pumps15 | Pumps | 15 | 0.0091 | 0.0459 | 0.0571 | 0.0001 | 0.0026 | 7.4 | 0.0008 |
| 2023 | 2023Pumps25 | Pumps | 25 | 0.0251 | 0.0827 | 0.1527 | 0.0002 | 0.0064 | 19.5 | 0.0023 |
| 2023 | 2023Pumps50 | Pumps | 50 | 0.0350 | 0.2434 | 0.2263 | 0.0004 | 0.0081 | 34.3 | 0.0032 |
| 2023 | 2023Pumps120 | Pumps | 120 | 0.0417 | 0.4668 | 0.3476 | 0.0009 | 0.0174 | 77.9 | 0.0038 |
| 2023 | 2023Pumps175 | Pumps | 175 | 0.0569 | 0.7333 | 0.4157 | 0.0016 | 0.0189 | 140 | 0.0051 |
| 2023 | 2023Pumps250 | Pumps | 250 | 0.0635 | 0.3626 | 0.4870 | 0.0023 | 0.0145 | 201 | 0.0057 |
| 2023 | 2023Pumps500 | Pumps | 500 | 0.1054 | 0.6070 | 0.7693 | 0.0034 | 0.0240 | 345 | 0.0095 |
| 2023 | 2023Pumps750 | Pumps | 750 | 0.1755 | 1.0035 | 1.2976 | 0.0057 | 0.0401 | 571 | 0.0158 |
| 2023 | 2023Pumps9999 | Pumps | 9999 | 0.5003 | 2.4976 | 7.4174 | 0.0136 | 0.1447 | 1,355 | 0.0451 |
| 2023 | 2023Pumps Composite | Pumps Composite | | 0.0302 | 0.2631 | 0.2319 | 0.0006 | 0.0101 | 49.6 | 0.0027 |
| 2023 | 2023Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2023 | 2023Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2023 | 2023Rollers50 | Rollers | 50 | 0.0404 | 0.2311 | 0.1870 | 0.0003 | 0.0088 | 26.0 | 0.0036 |
| 2023 | 2023Rollers120 | Rollers | 120 | 0.0449 | 0.3822 | 0.3039 | 0.0007 | 0.0180 | 59.0 | 0.0041 |
| 2023 | 2023Rollers175 | Rollers | 175 | 0.0625 | 0.6100 | 0.3806 | 0.0012 | 0.0199 | 108 | 0.0056 |
| 2023 | 2023Rollers250 | Rollers | 250 | 0.0723 | 0.3089 | 0.4627 | 0.0017 | 0.0161 | 153 | 0.0065 |
| 2023 | 2023Rollers500 | Rollers | 500 | 0.1005 | 0.4310 | 0.5973 | 0.0022 | 0.0219 | 219 | 0.0091 |
| 2023 | 2023Rollers Composite | Rollers Composite | | 0.0465 | 0.3784 | 0.2939 | 0.0008 | 0.0159 | 67.0 | 0.0042 |
| 2023 | 2023Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0420 | 0.3076 | 0.2321 | 0.0004 | 0.0074 | 33.9 | 0.0038 |
| 2023 | 2023Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0408 | 0.4115 | 0.2618 | 0.0007 | 0.0122 | 62.4 | 0.0037 |
| 2023 | 2023Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0645 | 0.7228 | 0.3175 | 0.0014 | 0.0158 | 125 | 0.0058 |
| 2023 | 2023Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0744 | 0.3388 | 0.3483 | 0.0019 | 0.0117 | 171 | 0.0067 |
| 2023 | 2023Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1103 | 0.4861 | 0.4872 | 0.0025 | 0.0172 | 257 | 0.0100 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0439 | 0.4439 | 0.2688 | 0.0008 | 0.0125 | 70.3 | 0.0040 |
| 2023 | 2023Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1290 | 0.8053 | 0.8018 | 0.0015 | 0.0450 | 129 | 0.0116 |
| 2023 | 2023Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1461 | 0.4845 | 1.0318 | 0.0021 | 0.0402 | 183 | 0.0132 |
| 2023 | 2023Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1986 | 0.8077 | 1.3478 | 0.0026 | 0.0528 | 265 | 0.0179 |
| 2023 | 2023Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3001 | 1.2140 | 2.0778 | 0.0040 | 0.0805 | 399 | 0.0271 |
| 2023 | 2023Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4726 | 1.9494 | 4.9100 | 0.0060 | 0.1372 | 592 | 0.0426 |
| 2023 | 2023Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1830 | 0.7078 | 1.2624 | 0.0025 | 0.0494 | 239 | 0.0165 |
| 2023 | 2023Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2023 | 2023Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0475 | 0.2955 | 0.2217 | 0.0004 | 0.0091 | 31.1 | 0.0043 |
| 2023 | 2023Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0449 | 0.3934 | 0.2826 | 0.0007 | 0.0154 | 58.9 | 0.0040 |
| 2023 | 2023Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0618 | 0.6203 | 0.3296 | 0.0012 | 0.0169 | 106 | 0.0056 |
| 2023 | 2023Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0725 | 0.3079 | 0.3901 | 0.0017 | 0.0136 | 149 | 0.0065 |
| 2023 | 2023Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1127 | 0.4766 | 0.5638 | 0.0023 | 0.0207 | 237 | 0.0102 |
| 2023 | 2023Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2313 | 0.9758 | 1.1789 | 0.0049 | 0.0428 | 486 | 0.0209 |
| 2023 | 2023Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2970 | 1.2278 | 3.4839 | 0.0060 | 0.0740 | 594 | 0.0268 |
| 2023 | 2023Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0622 | 0.4340 | 0.3467 | 0.0012 | 0.0158 | 109 | 0.0056 |
| 2023 | 2023Scrapers120 | Scrapers | 120 | 0.1005 | 0.6522 | 0.5911 | 0.0011 | 0.0410 | 93.9 | 0.0091 |
| 2023 | 2023Scrapers175 | Scrapers | 175 | 0.1160 | 0.8884 | 0.6857 | 0.0017 | 0.0378 | 148 | 0.0105 |
| 2023 | 2023Scrapers250 | Scrapers | 250 | 0.1302 | 0.4766 | 0.8568 | 0.0024 | 0.0308 | 209 | 0.0117 |
| 2023 | 2023Scrapers500 | Scrapers | 500 | 0.1912 | 0.7700 | 1.1799 | 0.0032 | 0.0440 | 321 | 0.0173 |
| 2023 | 2023Scrapers750 | Scrapers | 750 | 0.3318 | 1.3291 | 2.0977 | 0.0056 | 0.0772 | 555 | 0.0299 |
| 2023 | 2023Scrapers Composite | Scrapers Composite | | 0.1641 | 0.7432 | 1.0171 | 0.0027 | 0.0406 | 262 | 0.0148 |
| 2023 | 2023Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2023 | 2023Signal Boards50 | Signal Boards | 50 | 0.0384 | 0.2727 | 0.2399 | 0.0005 | 0.0084 | 36.2 | 0.0035 |
| 2023 | 2023Signal Boards120 | Signal Boards | 120 | 0.0445 | 0.4910 | 0.3489 | 0.0009 | 0.0173 | 80.2 | 0.0040 |
| 2023 | 2023Signal Boards175 | Signal Boards | 175 | 0.0664 | 0.8282 | 0.4356 | 0.0017 | 0.0205 | 155 | 0.0060 |
| 2023 | 2023Signal Boards250 | Signal Boards | 250 | 0.0875 | 0.4696 | 0.5809 | 0.0029 | 0.0179 | 255 | 0.0079 |
| 2023 | 2023Signal Boards Composite | Signal Boards Composite | | 0.0117 | 0.0909 | 0.0780 | 0.0002 | 0.0033 | 16.7 | 0.0011 |
| 2023 | 2023Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0569 | 0.1059 | 0.0002 | 0.0041 | 13.8 | 0.0015 |
| 2023 | 2023Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0204 | 0.1985 | 0.1509 | 0.0003 | 0.0024 | 25.5 | 0.0018 |
| 2023 | 2023Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0188 | 0.2667 | 0.1364 | 0.0005 | 0.0034 | 42.8 | 0.0017 |
| 2023 | 2023Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0196 | 0.2110 | 0.1433 | 0.0004 | 0.0028 | 30.3 | 0.0018 |
| 2023 | 2023Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0202 | 0.1133 | 0.0981 | 0.0002 | 0.0045 | 14.1 | 0.0018 |
| 2023 | 2023Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0447 | 0.3975 | 0.3274 | 0.0007 | 0.0190 | 63.8 | 0.0040 |
| 2023 | 2023Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0441 | 0.4649 | 0.3028 | 0.0010 | 0.0150 | 85.8 | 0.0040 |
| 2023 | 2023Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0556 | 0.2653 | 0.4118 | 0.0015 | 0.0138 | 135 | 0.0050 |
| 2023 | 2023Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0874 | 0.4395 | 0.6089 | 0.0022 | 0.0214 | 221 | 0.0079 |
| 2023 | 2023Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1379 | 0.6891 | 0.9797 | 0.0035 | 0.0339 | 347 | 0.0124 |
| 2023 | 2023Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0703 | 0.3707 | 0.4836 | 0.0017 | 0.0176 | 166 | 0.0063 |
| 2023 | 2023Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2023 | 2023Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2023 | 2023Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0340 | 0.2791 | 0.2089 | 0.0004 | 0.0055 | 31.6 | 0.0031 |
| 2023 | 2023Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0444 | 0.4909 | 0.2906 | 0.0009 | 0.0112 | 75.0 | 0.0040 |
| 2023 | 2023Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0660 | 0.8008 | 0.3115 | 0.0016 | 0.0134 | 139 | 0.0060 |
| 2023 | 2023Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0650 | 0.3180 | 0.2671 | 0.0018 | 0.0080 | 162 | 0.0059 |
| 2023 | 2023Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0464 | 0.4855 | 0.2689 | 0.0009 | 0.0099 | 78.5 | 0.0042 |
| 2023 | 2023Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2023 | 2023Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0338 | 0.2698 | 0.1988 | 0.0004 | 0.0052 | 30.3 | 0.0030 |
| 2023 | 2023Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0304 | 0.3384 | 0.1974 | 0.0006 | 0.0076 | 51.7 | 0.0027 |
| 2023 | 2023Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0469 | 0.5840 | 0.2114 | 0.0011 | 0.0099 | 101 | 0.0042 |
| 2023 | 2023Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0693 | 0.3406 | 0.2840 | 0.0019 | 0.0098 | 172 | 0.0062 |
| 2023 | 2023Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1378 | 0.6538 | 0.5358 | 0.0039 | 0.0192 | 345 | 0.0124 |
| 2023 | 2023Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2067 | 0.9806 | 0.8121 | 0.0058 | 0.0289 | 517 | 0.0186 |
| 2023 | 2023Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0365 | 0.3593 | 0.2127 | 0.0008 | 0.0081 | 66.8 | 0.0033 |
| 2023 | 2023Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2023 | 2023Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Trenchers50 | Trenchers | 50 | 0.0795 | 0.3301 | 0.2590 | 0.0004 | 0.0169 | 32.9 | 0.0072 |
| 2023 | 2023Trenchers120 | Trenchers | 120 | 0.0706 | 0.4377 | 0.4353 | 0.0008 | 0.0314 | 64.9 | 0.0064 |
| 2023 | 2023Trenchers175 | Trenchers | 175 | 0.1133 | 0.8348 | 0.7330 | 0.0016 | 0.0406 | 144 | 0.0102 |
| 2023 | 2023Trenchers250 | Trenchers | 250 | 0.1371 | 0.5094 | 1.0145 | 0.0025 | 0.0371 | 223 | 0.0124 |
| 2023 | 2023Trenchers500 | Trenchers | 500 | 0.1814 | 0.7801 | 1.2742 | 0.0031 | 0.0478 | 311 | 0.0164 |
| 2023 | 2023Trenchers750 | Trenchers | 750 | 0.3437 | 1.4692 | 2.4692 | 0.0059 | 0.0915 | 587 | 0.0310 |
| 2023 | 2023Trenchers Composite | Trenchers Composite | | 0.0767 | 0.4150 | 0.3876 | 0.0007 | 0.0260 | 58.7 | 0.0069 |
| 2023 | 2023Welders15 | Welders | 15 | 0.0076 | 0.0383 | 0.0477 | 0.0001 | 0.0021 | 6.2 | 0.0007 |
| 2023 | 2023Welders25 | Welders | 25 | 0.0145 | 0.0479 | 0.0884 | 0.0001 | 0.0037 | 11.3 | 0.0013 |
| 2023 | 2023Welders50 | Welders | 50 | 0.0325 | 0.2111 | 0.1783 | 0.0003 | 0.0070 | 26.0 | 0.0029 |
| 2023 | 2023Welders120 | Welders | 120 | 0.0253 | 0.2482 | 0.1823 | 0.0005 | 0.0099 | 39.5 | 0.0023 |
| 2023 | 2023Welders175 | Welders | 175 | 0.0486 | 0.5390 | 0.3026 | 0.0011 | 0.0150 | 98.2 | 0.0044 |
| 2023 | 2023Welders250 | Welders | 250 | 0.0466 | 0.2248 | 0.2994 | 0.0013 | 0.0095 | 119 | 0.0042 |
| 2023 | 2023Welders500 | Welders | 500 | 0.0641 | 0.3056 | 0.3864 | 0.0016 | 0.0129 | 168 | 0.0058 |
| 2023 | 2023Welders Composite | Welders Composite | | 0.0242 | 0.1762 | 0.1487 | 0.0003 | 0.0068 | 25.6 | 0.0022 |
| 2024 | 2024Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2024 | 2024Aerial Lifts25 | Aerial Lifts | 25 | 0.0133 | 0.0452 | 0.0840 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2024 | 2024Aerial Lifts50 | Aerial Lifts | 50 | 0.0181 | 0.1362 | 0.1253 | 0.0003 | 0.0040 | 19.6 | 0.0016 |
| 2024 | 2024Aerial Lifts120 | Aerial Lifts | 120 | 0.0188 | 0.2268 | 0.1590 | 0.0004 | 0.0073 | 38.1 | 0.0017 |
| 2024 | 2024Aerial Lifts500 | Aerial Lifts | 500 | 0.0608 | 0.3720 | 0.4189 | 0.0021 | 0.0127 | 213 | 0.0055 |
| 2024 | 2024Aerial Lifts750 | Aerial Lifts | 750 | 0.1106 | 0.6724 | 0.7727 | 0.0039 | 0.0232 | 385 | 0.0100 |
| 2024 | 2024Aerial Lifts Composite | Aerial Lifts Composite | | 0.0195 | 0.1652 | 0.1442 | 0.0004 | 0.0055 | 34.7 | 0.0018 |
| 2024 | 2024Air Compressors15 | Air Compressors | 15 | 0.0088 | 0.0445 | 0.0550 | 0.0001 | 0.0024 | 7.2 | 0.0008 |
| 2024 | 2024Air Compressors25 | Air Compressors | 25 | 0.0183 | 0.0609 | 0.1126 | 0.0002 | 0.0046 | 14.4 | 0.0017 |
| 2024 | 2024Air Compressors50 | Air Compressors | 50 | 0.0280 | 0.1922 | 0.1519 | 0.0003 | 0.0054 | 22.3 | 0.0025 |
| 2024 | 2024Air Compressors120 | Air Compressors | 120 | 0.0306 | 0.3025 | 0.2052 | 0.0006 | 0.0104 | 47.0 | 0.0028 |
| 2024 | 2024Air Compressors175 | Air Compressors | 175 | 0.0451 | 0.4992 | 0.2467 | 0.0010 | 0.0122 | 88.5 | 0.0041 |
| 2024 | 2024Air Compressors250 | Air Compressors | 250 | 0.0540 | 0.2536 | 0.2931 | 0.0015 | 0.0092 | 131 | 0.0049 |
| 2024 | 2024Air Compressors500 | Air Compressors | 500 | 0.0937 | 0.4300 | 0.4761 | 0.0023 | 0.0158 | 232 | 0.0085 |
| 2024 | 2024Air Compressors750 | Air Compressors | 750 | 0.1452 | 0.6646 | 0.7508 | 0.0036 | 0.0248 | 358 | 0.0131 |
| 2024 | 2024Air Compressors1000 | Air Compressors | 1000 | 0.2105 | 0.9360 | 2.6550 | 0.0049 | 0.0536 | 486 | 0.0190 |
| 2024 | 2024Air Compressors Composite | Air Compressors Composite | | 0.0369 | 0.3031 | 0.2272 | 0.0007 | 0.0103 | 63.6 | 0.0033 |
| 2024 | 2024Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2024 | 2024Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2024 | 2024Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1666 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2024 | 2024Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0253 | 0.4660 | 0.1970 | 0.0009 | 0.0021 | 77.1 | 0.0023 |
| 2024 | 2024Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0327 | 0.7542 | 0.0827 | 0.0016 | 0.0031 | 141 | 0.0030 |
| 2024 | 2024Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0429 | 0.3426 | 0.1014 | 0.0021 | 0.0036 | 188 | 0.0039 |
| 2024 | 2024Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0710 | 0.5512 | 0.1671 | 0.0031 | 0.0060 | 311 | 0.0064 |
| 2024 | 2024Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1404 | 1.0890 | 0.3303 | 0.0062 | 0.0119 | 615 | 0.0127 |
| 2024 | 2024Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2130 | 1.6436 | 3.9011 | 0.0093 | 0.0372 | 928 | 0.0192 |
| 2024 | 2024Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0431 | 0.5007 | 0.2892 | 0.0017 | 0.0043 | 165 | 0.0039 |
| 2024 | 2024Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2024 | 2024Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0214 | 0.0726 | 0.1350 | 0.0002 | 0.0053 | 17.6 | 0.0019 |
| 2024 | 2024Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2024 | 2024Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2024 | 2024Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0299 | 0.2302 | 0.1967 | 0.0004 | 0.0062 | 30.2 | 0.0027 |
| 2024 | 2024Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0392 | 0.4568 | 0.3021 | 0.0009 | 0.0138 | 74.1 | 0.0035 |
| 2024 | 2024Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0664 | 0.8662 | 0.3998 | 0.0018 | 0.0189 | 160 | 0.0060 |
| 2024 | 2024Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0358 | 0.3716 | 0.2608 | 0.0007 | 0.0109 | 58.5 | 0.0032 |
| 2024 | 2024Cranes50 | Cranes | 50 | 0.0373 | 0.2278 | 0.1687 | 0.0003 | 0.0072 | 23.2 | 0.0034 |
| 2024 | 2024Cranes120 | Cranes | 120 | 0.0399 | 0.3391 | 0.2459 | 0.0006 | 0.0138 | 50.1 | 0.0036 |
| 2024 | 2024Cranes175 | Cranes | 175 | 0.0490 | 0.4745 | 0.2579 | 0.0009 | 0.0136 | 80.3 | 0.0044 |
| 2024 | 2024Cranes250 | Cranes | 250 | 0.0571 | 0.2333 | 0.3059 | 0.0013 | 0.0107 | 112 | 0.0051 |
| 2024 | 2024Cranes500 | Cranes | 500 | 0.0897 | 0.3566 | 0.4464 | 0.0018 | 0.0165 | 180 | 0.0081 |
| 2024 | 2024Cranes750 | Cranes | 750 | 0.1512 | 0.5999 | 0.7661 | 0.0030 | 0.0280 | 303 | 0.0136 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2024Cranes9999 | Cranes | 9999 | 0.5477 | 1.9971 | 5.8122 | 0.0098 | 0.1254 | 971 | 0.0494 |
| 2024 | 2024Cranes Composite | Cranes Composite | | 0.0715 | 0.3759 | 0.4601 | 0.0014 | 0.0161 | 129 | 0.0065 |
| 2024 | 2024Crawler Tractors50 | Crawler Tractors | 50 | 0.0522 | 0.2599 | 0.1887 | 0.0003 | 0.0100 | 24.9 | 0.0047 |
| 2024 | 2024Crawler Tractors120 | Crawler Tractors | 120 | 0.0646 | 0.4552 | 0.3786 | 0.0008 | 0.0246 | 65.8 | 0.0058 |
| 2024 | 2024Crawler Tractors175 | Crawler Tractors | 175 | 0.0874 | 0.7271 | 0.4904 | 0.0014 | 0.0268 | 121 | 0.0079 |
| 2024 | 2024Crawler Tractors250 | Crawler Tractors | 250 | 0.0966 | 0.3701 | 0.5904 | 0.0019 | 0.0211 | 166 | 0.0087 |
| 2024 | 2024Crawler Tractors500 | Crawler Tractors | 500 | 0.1450 | 0.5986 | 0.8297 | 0.0025 | 0.0308 | 259 | 0.0131 |
| 2024 | 2024Crawler Tractors750 | Crawler Tractors | 750 | 0.2611 | 1.0724 | 1.5305 | 0.0047 | 0.0561 | 465 | 0.0236 |
| 2024 | 2024Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3931 | 1.6052 | 4.3851 | 0.0066 | 0.1037 | 658 | 0.0355 |
| 2024 | 2024Crawler Tractors Composite | Crawler Tractors Composite | | 0.0832 | 0.5092 | 0.4874 | 0.0013 | 0.0252 | 114 | 0.0075 |
| 2024 | 2024Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0538 | 0.3879 | 0.2983 | 0.0006 | 0.0097 | 44.0 | 0.0049 |
| 2024 | 2024Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0533 | 0.5409 | 0.3495 | 0.0010 | 0.0165 | 83.1 | 0.0048 |
| 2024 | 2024Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0845 | 0.9548 | 0.4334 | 0.0019 | 0.0210 | 167 | 0.0076 |
| 2024 | 2024Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1016 | 0.4774 | 0.5013 | 0.0028 | 0.0159 | 245 | 0.0092 |
| 2024 | 2024Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1531 | 0.6988 | 0.7082 | 0.0037 | 0.0236 | 374 | 0.0138 |
| 2024 | 2024Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2419 | 1.1018 | 1.1389 | 0.0059 | 0.0374 | 589 | 0.0218 |
| 2024 | 2024Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6320 | 2.5232 | 6.9713 | 0.0131 | 0.1376 | 1,308 | 0.0570 |
| 2024 | 2024Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0731 | 0.6193 | 0.4104 | 0.0015 | 0.0172 | 132 | 0.0066 |
| 2024 | 2024Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2024 | 2024Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2024 | 2024Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2024 | 2024Excavators50 | Excavators | 50 | 0.0307 | 0.2374 | 0.1655 | 0.0003 | 0.0041 | 25.0 | 0.0028 |
| 2024 | 2024Excavators120 | Excavators | 120 | 0.0466 | 0.4946 | 0.2785 | 0.0009 | 0.0108 | 73.6 | 0.0042 |
| 2024 | 2024Excavators175 | Excavators | 175 | 0.0546 | 0.6636 | 0.2257 | 0.0013 | 0.0107 | 112 | 0.0049 |
| 2024 | 2024Excavators250 | Excavators | 250 | 0.0675 | 0.3218 | 0.2539 | 0.0018 | 0.0086 | 159 | 0.0061 |
| 2024 | 2024Excavators500 | Excavators | 500 | 0.0985 | 0.4507 | 0.3521 | 0.0023 | 0.0124 | 234 | 0.0089 |
| 2024 | 2024Excavators750 | Excavators | 750 | 0.1635 | 0.7470 | 0.5916 | 0.0039 | 0.0207 | 387 | 0.0148 |
| 2024 | 2024Excavators Composite | Excavators Composite | | 0.0585 | 0.5091 | 0.2524 | 0.0013 | 0.0101 | 120 | 0.0053 |
| 2024 | 2024Forklifts50 | Forklifts | 50 | 0.0154 | 0.1361 | 0.0920 | 0.0002 | 0.0015 | 14.7 | 0.0014 |
| 2024 | 2024Forklifts120 | Forklifts | 120 | 0.0175 | 0.2086 | 0.1060 | 0.0004 | 0.0027 | 31.2 | 0.0016 |
| 2024 | 2024Forklifts175 | Forklifts | 175 | 0.0243 | 0.3307 | 0.0892 | 0.0006 | 0.0033 | 56.1 | 0.0022 |
| 2024 | 2024Forklifts250 | Forklifts | 250 | 0.0301 | 0.1550 | 0.0895 | 0.0009 | 0.0030 | 77.1 | 0.0027 |
| 2024 | 2024Forklifts500 | Forklifts | 500 | 0.0432 | 0.2122 | 0.1230 | 0.0011 | 0.0042 | 111 | 0.0039 |
| 2024 | 2024Forklifts Composite | Forklifts Composite | | 0.0246 | 0.2146 | 0.0974 | 0.0006 | 0.0029 | 54.4 | 0.0022 |
| 2024 | 2024Generator Sets15 | Generator Sets | 15 | 0.0110 | 0.0629 | 0.0775 | 0.0002 | 0.0033 | 10.2 | 0.0010 |
| 2024 | 2024Generator Sets25 | Generator Sets | 25 | 0.0217 | 0.0743 | 0.1375 | 0.0002 | 0.0056 | 17.6 | 0.0020 |
| 2024 | 2024Generator Sets50 | Generator Sets | 50 | 0.0262 | 0.2050 | 0.1936 | 0.0004 | 0.0059 | 30.6 | 0.0024 |
| 2024 | 2024Generator Sets120 | Generator Sets | 120 | 0.0364 | 0.4591 | 0.3212 | 0.0009 | 0.0142 | 77.9 | 0.0033 |
| 2024 | 2024Generator Sets175 | Generator Sets | 175 | 0.0502 | 0.7324 | 0.3708 | 0.0016 | 0.0158 | 142 | 0.0045 |
| 2024 | 2024Generator Sets250 | Generator Sets | 250 | 0.0588 | 0.3756 | 0.4449 | 0.0024 | 0.0127 | 213 | 0.0053 |
| 2024 | 2024Generator Sets500 | Generator Sets | 500 | 0.0905 | 0.5835 | 0.6525 | 0.0033 | 0.0195 | 337 | 0.0082 |
| 2024 | 2024Generator Sets750 | Generator Sets | 750 | 0.1473 | 0.9420 | 1.0745 | 0.0055 | 0.0318 | 544 | 0.0133 |
| 2024 | 2024Generator Sets9999 | Generator Sets | 9999 | 0.3426 | 1.8853 | 5.4399 | 0.0105 | 0.0985 | 1,049 | 0.0309 |
| 2024 | 2024Generator Sets Composite | Generator Sets Composite | | 0.0303 | 0.2674 | 0.2464 | 0.0007 | 0.0092 | 61.0 | 0.0027 |
| 2024 | 2024Graders50 | Graders | 50 | 0.0407 | 0.2621 | 0.1922 | 0.0004 | 0.0073 | 27.5 | 0.0037 |
| 2024 | 2024Graders120 | Graders | 120 | 0.0554 | 0.5021 | 0.3433 | 0.0009 | 0.0177 | 75.0 | 0.0050 |
| 2024 | 2024Graders175 | Graders | 175 | 0.0693 | 0.7264 | 0.3512 | 0.0014 | 0.0179 | 124 | 0.0063 |
| 2024 | 2024Graders250 | Graders | 250 | 0.0816 | 0.3568 | 0.4129 | 0.0019 | 0.0145 | 172 | 0.0074 |
| 2024 | 2024Graders500 | Graders | 500 | 0.1065 | 0.4665 | 0.5014 | 0.0023 | 0.0185 | 229 | 0.0096 |
| 2024 | 2024Graders750 | Graders | 750 | 0.2259 | 0.9869 | 1.0831 | 0.0049 | 0.0395 | 486 | 0.0204 |
| 2024 | 2024Graders Composite | Graders Composite | | 0.0714 | 0.5706 | 0.3709 | 0.0015 | 0.0168 | 133 | 0.0064 |
| 2024 | 2024Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1169 | 0.6647 | 0.6724 | 0.0011 | 0.0494 | 93.7 | 0.0106 |
| 2024 | 2024Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1172 | 0.7945 | 0.7183 | 0.0015 | 0.0402 | 130 | 0.0106 |
| 2024 | 2024Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0933 | 0.3246 | 0.6484 | 0.0015 | 0.0247 | 130 | 0.0084 |
| 2024 | 2024Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3859 | 1.5884 | 2.6171 | 0.0057 | 0.0998 | 568 | 0.0348 |
| 2024 | 2024Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5888 | 2.4551 | 6.3258 | 0.0082 | 0.1689 | 814 | 0.0531 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2024Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1192 | 0.6165 | 0.7884 | 0.0017 | 0.0360 | 151 | 0.0108 |
| 2024 | 2024Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0655 | 0.7536 | 0.2698 | 0.0014 | 0.0131 | 125 | 0.0059 |
| 2024 | 2024Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0761 | 0.3445 | 0.2879 | 0.0019 | 0.0098 | 167 | 0.0069 |
| 2024 | 2024Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1232 | 0.5334 | 0.4414 | 0.0027 | 0.0157 | 272 | 0.0111 |
| 2024 | 2024Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2001 | 0.8652 | 0.7266 | 0.0044 | 0.0256 | 442 | 0.0181 |
| 2024 | 2024Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2949 | 1.2476 | 3.2774 | 0.0063 | 0.0601 | 625 | 0.0266 |
| 2024 | 2024Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1189 | 0.5401 | 0.5286 | 0.0027 | 0.0164 | 260 | 0.0107 |
| 2024 | 2024Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2024 | 2024Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2024 | 2024Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0254 | 0.2197 | 0.1736 | 0.0004 | 0.0040 | 28.0 | 0.0023 |
| 2024 | 2024Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0397 | 0.5049 | 0.2876 | 0.0009 | 0.0103 | 80.9 | 0.0036 |
| 2024 | 2024Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0407 | 0.5858 | 0.1980 | 0.0012 | 0.0089 | 107 | 0.0037 |
| 2024 | 2024Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0828 | 0.4612 | 0.3489 | 0.0025 | 0.0117 | 254 | 0.0075 |
| 2024 | 2024Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0462 | 0.3477 | 0.2244 | 0.0013 | 0.0079 | 123 | 0.0042 |
| 2024 | 2024Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2024 | 2024Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2024 | 2024Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0316 | 0.2111 | 0.1534 | 0.0003 | 0.0055 | 21.7 | 0.0029 |
| 2024 | 2024Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0460 | 0.4192 | 0.2770 | 0.0007 | 0.0141 | 62.0 | 0.0041 |
| 2024 | 2024Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0551 | 0.5678 | 0.2723 | 0.0011 | 0.0135 | 95.9 | 0.0050 |
| 2024 | 2024Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0637 | 0.2749 | 0.3073 | 0.0015 | 0.0097 | 136 | 0.0058 |
| 2024 | 2024Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1228 | 0.5114 | 0.5533 | 0.0026 | 0.0185 | 265 | 0.0111 |
| 2024 | 2024Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2029 | 0.8429 | 0.9305 | 0.0044 | 0.0309 | 437 | 0.0183 |
| 2024 | 2024Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2763 | 1.1172 | 3.1204 | 0.0056 | 0.0642 | 560 | 0.0249 |
| 2024 | 2024Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0784 | 0.4446 | 0.4363 | 0.0016 | 0.0151 | 152 | 0.0071 |
| 2024 | 2024Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0435 | 0.2910 | 0.2133 | 0.0004 | 0.0076 | 30.3 | 0.0039 |
| 2024 | 2024Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0444 | 0.4079 | 0.2705 | 0.0007 | 0.0138 | 60.7 | 0.0040 |
| 2024 | 2024Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0694 | 0.7189 | 0.3463 | 0.0014 | 0.0172 | 122 | 0.0063 |
| 2024 | 2024Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0673 | 0.2925 | 0.3285 | 0.0016 | 0.0104 | 145 | 0.0061 |
| 2024 | 2024Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0875 | 0.3678 | 0.3992 | 0.0019 | 0.0133 | 192 | 0.0079 |
| 2024 | 2024Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3974 | 1.4745 | 4.1250 | 0.0073 | 0.0848 | 741 | 0.0359 |
| 2024 | 2024Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0733 | 0.4362 | 0.4243 | 0.0015 | 0.0145 | 141 | 0.0066 |
| 2024 | 2024Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2024 | 2024Pavers50 | Pavers | 50 | 0.0618 | 0.2844 | 0.2154 | 0.0004 | 0.0127 | 28.0 | 0.0056 |
| 2024 | 2024Pavers120 | Pavers | 120 | 0.0706 | 0.4714 | 0.4258 | 0.0008 | 0.0292 | 69.2 | 0.0064 |
| 2024 | 2024Pavers175 | Pavers | 175 | 0.0956 | 0.7552 | 0.5753 | 0.0014 | 0.0317 | 128 | 0.0086 |
| 2024 | 2024Pavers250 | Pavers | 250 | 0.1150 | 0.4348 | 0.7727 | 0.0022 | 0.0279 | 194 | 0.0104 |
| 2024 | 2024Pavers500 | Pavers | 500 | 0.1319 | 0.5518 | 0.8323 | 0.0023 | 0.0311 | 233 | 0.0119 |
| 2024 | 2024Pavers Composite | Pavers Composite | | 0.0764 | 0.4773 | 0.4135 | 0.0009 | 0.0244 | 77.9 | 0.0069 |
| 2024 | 2024Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2024 | 2024Paving Equipment50 | Paving Equipment | 50 | 0.0508 | 0.2391 | 0.1834 | 0.0003 | 0.0106 | 23.9 | 0.0046 |
| 2024 | 2024Paving Equipment120 | Paving Equipment | 120 | 0.0539 | 0.3687 | 0.3298 | 0.0006 | 0.0225 | 54.5 | 0.0049 |
| 2024 | 2024Paving Equipment175 | Paving Equipment | 175 | 0.0733 | 0.5907 | 0.4437 | 0.0011 | 0.0244 | 101 | 0.0066 |
| 2024 | 2024Paving Equipment250 | Paving Equipment | 250 | 0.0705 | 0.2683 | 0.4748 | 0.0014 | 0.0170 | 122 | 0.0064 |
| 2024 | 2024Paving Equipment Composite | Paving Equipment Composite | | 0.0584 | 0.4007 | 0.3546 | 0.0008 | 0.0212 | 68.9 | 0.0053 |
| 2024 | 2024Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2024 | 2024Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2024 | 2024Pressure Washers15 | Pressure Washers | 15 | 0.0053 | 0.0301 | 0.0371 | 0.0001 | 0.0016 | 4.9 | 0.0005 |
| 2024 | 2024Pressure Washers25 | Pressure Washers | 25 | 0.0088 | 0.0301 | 0.0557 | 0.0001 | 0.0023 | 7.1 | 0.0008 |
| 2024 | 2024Pressure Washers50 | Pressure Washers | 50 | 0.0086 | 0.0816 | 0.0868 | 0.0002 | 0.0022 | 14.3 | 0.0008 |
| 2024 | 2024Pressure Washers120 | Pressure Washers | 120 | 0.0088 | 0.1353 | 0.0952 | 0.0003 | 0.0037 | 24.1 | 0.0008 |
| 2024 | 2024Pressure Washers Composite | Pressure Washers Composite | | 0.0069 | 0.0534 | 0.0575 | 0.0001 | 0.0020 | 9.4 | 0.0006 |
| 2024 | 2024Pumps15 | Pumps | 15 | 0.0090 | 0.0457 | 0.0565 | 0.0001 | 0.0025 | 7.4 | 0.0008 |
| 2024 | 2024Pumps25 | Pumps | 25 | 0.0247 | 0.0821 | 0.1519 | 0.0002 | 0.0062 | 19.5 | 0.0022 |
| 2024 | 2024Pumps50 | Pumps | 50 | 0.0323 | 0.2413 | 0.2200 | 0.0004 | 0.0071 | 34.3 | 0.0029 |
| 2024 | 2024Pumps120 | Pumps | 120 | 0.0390 | 0.4661 | 0.3256 | 0.0009 | 0.0151 | 77.9 | 0.0035 |
| 2024 | 2024Pumps175 | Pumps | 175 | 0.0533 | 0.7338 | 0.3720 | 0.0016 | 0.0165 | 140 | 0.0048 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2024Pumps250 | Pumps | 250 | 0.0603 | 0.3614 | 0.4290 | 0.0023 | 0.0125 | 201 | 0.0054 |
| 2024 | 2024Pumps500 | Pumps | 500 | 0.1006 | 0.6050 | 0.6783 | 0.0034 | 0.0208 | 345 | 0.0091 |
| 2024 | 2024Pumps750 | Pumps | 750 | 0.1672 | 1.0001 | 1.1442 | 0.0057 | 0.0348 | 571 | 0.0151 |
| 2024 | 2024Pumps9999 | Pumps | 9999 | 0.4739 | 2.4659 | 7.1019 | 0.0136 | 0.1313 | 1,355 | 0.0428 |
| 2024 | 2024Pumps Composite | Pumps Composite | | 0.0285 | 0.2624 | 0.2193 | 0.0006 | 0.0089 | 49.6 | 0.0026 |
| 2024 | 2024Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2024 | 2024Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2024 | 2024Rollers50 | Rollers | 50 | 0.0371 | 0.2282 | 0.1822 | 0.0003 | 0.0077 | 26.0 | 0.0033 |
| 2024 | 2024Rollers120 | Rollers | 120 | 0.0418 | 0.3810 | 0.2832 | 0.0007 | 0.0157 | 59.0 | 0.0038 |
| 2024 | 2024Rollers175 | Rollers | 175 | 0.0587 | 0.6097 | 0.3395 | 0.0012 | 0.0176 | 108 | 0.0053 |
| 2024 | 2024Rollers250 | Rollers | 250 | 0.0689 | 0.3061 | 0.4099 | 0.0017 | 0.0143 | 153 | 0.0062 |
| 2024 | 2024Rollers500 | Rollers | 500 | 0.0962 | 0.4242 | 0.5328 | 0.0022 | 0.0195 | 219 | 0.0087 |
| 2024 | 2024Rollers Composite | Rollers Composite | | 0.0435 | 0.3772 | 0.2707 | 0.0008 | 0.0139 | 67.0 | 0.0039 |
| 2024 | 2024Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0398 | 0.3057 | 0.2254 | 0.0004 | 0.0063 | 33.9 | 0.0036 |
| 2024 | 2024Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0387 | 0.4110 | 0.2454 | 0.0007 | 0.0104 | 62.4 | 0.0035 |
| 2024 | 2024Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0605 | 0.7228 | 0.2796 | 0.0014 | 0.0134 | 125 | 0.0055 |
| 2024 | 2024Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0705 | 0.3379 | 0.3029 | 0.0019 | 0.0099 | 171 | 0.0064 |
| 2024 | 2024Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1048 | 0.4847 | 0.4245 | 0.0025 | 0.0146 | 257 | 0.0095 |
| 2024 | 2024Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0416 | 0.4433 | 0.2499 | 0.0008 | 0.0106 | 70.3 | 0.0038 |
| 2024 | 2024Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1225 | 0.8035 | 0.7440 | 0.0015 | 0.0417 | 129 | 0.0111 |
| 2024 | 2024Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1392 | 0.4728 | 0.9557 | 0.0021 | 0.0369 | 183 | 0.0126 |
| 2024 | 2024Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1898 | 0.7765 | 1.2479 | 0.0026 | 0.0487 | 265 | 0.0171 |
| 2024 | 2024Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2869 | 1.1673 | 1.9252 | 0.0040 | 0.0742 | 399 | 0.0259 |
| 2024 | 2024Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4517 | 1.8684 | 4.7258 | 0.0060 | 0.1284 | 592 | 0.0408 |
| 2024 | 2024Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1748 | 0.6835 | 1.1695 | 0.0025 | 0.0455 | 239 | 0.0158 |
| 2024 | 2024Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2024 | 2024Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0443 | 0.2927 | 0.2161 | 0.0004 | 0.0079 | 31.1 | 0.0040 |
| 2024 | 2024Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0420 | 0.3924 | 0.2639 | 0.0007 | 0.0132 | 58.9 | 0.0038 |
| 2024 | 2024Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0580 | 0.6201 | 0.2922 | 0.0012 | 0.0148 | 106 | 0.0052 |
| 2024 | 2024Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0691 | 0.3059 | 0.3442 | 0.0017 | 0.0121 | 149 | 0.0062 |
| 2024 | 2024Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1078 | 0.4705 | 0.5009 | 0.0023 | 0.0184 | 237 | 0.0097 |
| 2024 | 2024Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2211 | 0.9634 | 1.0446 | 0.0049 | 0.0380 | 486 | 0.0199 |
| 2024 | 2024Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2828 | 1.2085 | 3.3471 | 0.0060 | 0.0674 | 594 | 0.0255 |
| 2024 | 2024Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0588 | 0.4324 | 0.3131 | 0.0012 | 0.0138 | 109 | 0.0053 |
| 2024 | 2024Scrapers120 | Scrapers | 120 | 0.0943 | 0.6496 | 0.5551 | 0.0011 | 0.0368 | 93.9 | 0.0085 |
| 2024 | 2024Scrapers175 | Scrapers | 175 | 0.1090 | 0.8874 | 0.6232 | 0.0017 | 0.0341 | 148 | 0.0098 |
| 2024 | 2024Scrapers250 | Scrapers | 250 | 0.1242 | 0.4700 | 0.7773 | 0.0024 | 0.0280 | 209 | 0.0112 |
| 2024 | 2024Scrapers500 | Scrapers | 500 | 0.1830 | 0.7505 | 1.0718 | 0.0032 | 0.0400 | 321 | 0.0165 |
| 2024 | 2024Scrapers750 | Scrapers | 750 | 0.3175 | 1.2955 | 1.9046 | 0.0056 | 0.0702 | 555 | 0.0286 |
| 2024 | 2024Scrapers Composite | Scrapers Composite | | 0.1565 | 0.7302 | 0.9241 | 0.0027 | 0.0369 | 262 | 0.0141 |
| 2024 | 2024Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2024 | 2024Signal Boards50 | Signal Boards | 50 | 0.0357 | 0.2705 | 0.2332 | 0.0005 | 0.0073 | 36.2 | 0.0032 |
| 2024 | 2024Signal Boards120 | Signal Boards | 120 | 0.0418 | 0.4904 | 0.3267 | 0.0009 | 0.0149 | 80.2 | 0.0038 |
| 2024 | 2024Signal Boards175 | Signal Boards | 175 | 0.0624 | 0.8287 | 0.3881 | 0.0017 | 0.0178 | 155 | 0.0056 |
| 2024 | 2024Signal Boards250 | Signal Boards | 250 | 0.0833 | 0.4684 | 0.5094 | 0.0029 | 0.0155 | 255 | 0.0075 |
| 2024 | 2024Signal Boards Composite | Signal Boards Composite | | 0.0114 | 0.0909 | 0.0747 | 0.0002 | 0.0031 | 16.7 | 0.0010 |
| 2024 | 2024Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1056 | 0.0002 | 0.0041 | 13.8 | 0.0015 |
| 2024 | 2024Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0198 | 0.1981 | 0.1474 | 0.0003 | 0.0019 | 25.5 | 0.0018 |
| 2024 | 2024Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0181 | 0.2666 | 0.1295 | 0.0005 | 0.0027 | 42.8 | 0.0016 |
| 2024 | 2024Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0190 | 0.2107 | 0.1389 | 0.0004 | 0.0023 | 30.3 | 0.0017 |
| 2024 | 2024Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0185 | 0.1118 | 0.0956 | 0.0002 | 0.0040 | 14.1 | 0.0017 |
| 2024 | 2024Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0414 | 0.3961 | 0.3061 | 0.0007 | 0.0167 | 63.8 | 0.0037 |
| 2024 | 2024Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0412 | 0.4645 | 0.2712 | 0.0010 | 0.0133 | 85.8 | 0.0037 |
| 2024 | 2024Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0528 | 0.2627 | 0.3674 | 0.0015 | 0.0124 | 135 | 0.0048 |
| 2024 | 2024Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0836 | 0.4310 | 0.5459 | 0.0022 | 0.0193 | 221 | 0.0075 |
| 2024 | 2024Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1317 | 0.6758 | 0.8761 | 0.0035 | 0.0306 | 347 | 0.0119 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2024Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0669 | 0.3644 | 0.4356 | 0.0017 | 0.0159 | 166 | 0.0060 |
| 2024 | 2024Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2024 | 2024Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2024 | 2024Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0322 | 0.2774 | 0.2012 | 0.0004 | 0.0043 | 31.6 | 0.0029 |
| 2024 | 2024Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0417 | 0.4901 | 0.2701 | 0.0009 | 0.0086 | 75.0 | 0.0038 |
| 2024 | 2024Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0608 | 0.8006 | 0.2634 | 0.0016 | 0.0101 | 139 | 0.0055 |
| 2024 | 2024Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0616 | 0.3179 | 0.2252 | 0.0018 | 0.0069 | 162 | 0.0056 |
| 2024 | 2024Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0434 | 0.4846 | 0.2457 | 0.0009 | 0.0076 | 78.5 | 0.0039 |
| 2024 | 2024Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2024 | 2024Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0326 | 0.2687 | 0.1939 | 0.0004 | 0.0043 | 30.3 | 0.0029 |
| 2024 | 2024Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0291 | 0.3381 | 0.1857 | 0.0006 | 0.0065 | 51.7 | 0.0026 |
| 2024 | 2024Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0442 | 0.5840 | 0.1843 | 0.0011 | 0.0084 | 101 | 0.0040 |
| 2024 | 2024Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0661 | 0.3397 | 0.2465 | 0.0019 | 0.0084 | 172 | 0.0060 |
| 2024 | 2024Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1317 | 0.6521 | 0.4696 | 0.0039 | 0.0166 | 345 | 0.0119 |
| 2024 | 2024Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1976 | 0.9781 | 0.7117 | 0.0058 | 0.0250 | 517 | 0.0178 |
| 2024 | 2024Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0349 | 0.3589 | 0.1980 | 0.0008 | 0.0069 | 66.8 | 0.0031 |
| 2024 | 2024Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2024 | 2024Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2024 | 2024Trenchers50 | Trenchers | 50 | 0.0739 | 0.3247 | 0.2527 | 0.0004 | 0.0154 | 32.9 | 0.0067 |
| 2024 | 2024Trenchers120 | Trenchers | 120 | 0.0664 | 0.4358 | 0.4099 | 0.0008 | 0.0286 | 64.9 | 0.0060 |
| 2024 | 2024Trenchers175 | Trenchers | 175 | 0.1069 | 0.8337 | 0.6721 | 0.0016 | 0.0371 | 144 | 0.0096 |
| 2024 | 2024Trenchers250 | Trenchers | 250 | 0.1307 | 0.5004 | 0.9284 | 0.0025 | 0.0339 | 223 | 0.0118 |
| 2024 | 2024Trenchers500 | Trenchers | 500 | 0.1735 | 0.7573 | 1.1664 | 0.0031 | 0.0438 | 311 | 0.0157 |
| 2024 | 2024Trenchers750 | Trenchers | 750 | 0.3287 | 1.4264 | 2.2609 | 0.0059 | 0.0838 | 587 | 0.0297 |
| 2024 | 2024Trenchers Composite | Trenchers Composite | | 0.0719 | 0.4116 | 0.3672 | 0.0007 | 0.0237 | 58.7 | 0.0065 |
| 2024 | 2024Welders15 | Welders | 15 | 0.0076 | 0.0382 | 0.0472 | 0.0001 | 0.0021 | 6.2 | 0.0007 |
| 2024 | 2024Welders25 | Welders | 25 | 0.0143 | 0.0475 | 0.0880 | 0.0001 | 0.0036 | 11.3 | 0.0013 |
| 2024 | 2024Welders50 | Welders | 50 | 0.0301 | 0.2093 | 0.1733 | 0.0003 | 0.0061 | 26.0 | 0.0027 |
| 2024 | 2024Welders120 | Welders | 120 | 0.0237 | 0.2479 | 0.1705 | 0.0005 | 0.0085 | 39.5 | 0.0021 |
| 2024 | 2024Welders175 | Welders | 175 | 0.0457 | 0.5395 | 0.2704 | 0.0011 | 0.0131 | 98.2 | 0.0041 |
| 2024 | 2024Welders250 | Welders | 250 | 0.0444 | 0.2241 | 0.2632 | 0.0013 | 0.0082 | 119 | 0.0040 |
| 2024 | 2024Welders500 | Welders | 500 | 0.0613 | 0.3047 | 0.3404 | 0.0016 | 0.0111 | 168 | 0.0055 |
| 2024 | 2024Welders Composite | Welders Composite | | 0.0227 | 0.1753 | 0.1428 | 0.0003 | 0.0059 | 25.6 | 0.0021 |
| 2025 | 2025Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2025 | 2025Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2025 | 2025Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2025 | 2025Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2025 | 2025Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2025 | 2025Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2025 | 2025Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2025 | 2025Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2025 | 2025Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2025 | 2025Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2025 | 2025Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2025 | 2025Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2025 | 2025Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2025 | 2025Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2025 | 2025Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2025 | 2025Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2025 | 2025Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2025 | 2025Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2025 | 2025Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2025 | 2025Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2025 | 2025Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2025 | 2025Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2025 | 2025Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | 2025Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2025 | 2025Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2025 | 2025Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2025 | 2025Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2025 | 2025Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2025 | 2025Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2025 | 2025Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2025 | 2025Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2025 | 2025Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2025 | 2025Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2025 | 2025Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2025 | 2025Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2025 | 2025Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2025 | 2025Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2025 | 2025Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2025 | 2025Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2025 | 2025Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2025 | 2025Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2025 | 2025Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2025 | 2025Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2025 | 2025Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2025 | 2025Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2025 | 2025Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2025 | 2025Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2025 | 2025Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2025 | 2025Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2025 | 2025Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2025 | 2025Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2025 | 2025Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2025 | 2025Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2025 | 2025Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2025 | 2025Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2025 | 2025Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2025 | 2025Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2025 | 2025Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2025 | 2025Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2025 | 2025Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2025 | 2025Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2025 | 2025Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2025 | 2025Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2025 | 2025Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2025 | 2025Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2025 | 2025Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2025 | 2025Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2025 | 2025Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2025 | 2025Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2025 | 2025Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2025 | 2025Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2025 | 2025Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2025 | 2025Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2025 | 2025Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2025 | 2025Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2025 | 2025Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2025 | 2025Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2025 | 2025Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2025 | 2025Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | 2025Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2025 | 2025Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2025 | 2025Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2025 | 2025Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2025 | 2025Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2025 | 2025Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2025 | 2025Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2025 | 2025Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2025 | 2025Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2025 | 2025Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2025 | 2025Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2025 | 2025Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2025 | 2025Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2025 | 2025Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2025 | 2025Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2025 | 2025Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2025 | 2025Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2025 | 2025Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2025 | 2025Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2025 | 2025Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2025 | 2025Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2025 | 2025Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2025 | 2025Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2025 | 2025Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2025 | 2025Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2025 | 2025Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2025 | 2025Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2025 | 2025Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2025 | 2025Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2025 | 2025Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2025 | 2025Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2025 | 2025Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2025 | 2025Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2025 | 2025Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2025 | 2025Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2025 | 2025Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2025 | 2025Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2025 | 2025Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2025 | 2025Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2025 | 2025Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2025 | 2025Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2025 | 2025Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2025 | 2025Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2025 | 2025Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2025 | 2025Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2025 | 2025Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2025 | 2025Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2025 | 2025Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2025 | 2025Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2025 | 2025Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2025 | 2025Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2025 | 2025Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2025 | 2025Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2025 | 2025Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2025 | 2025Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2025 | 2025Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | 2025Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2025 | 2025Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2025 | 2025Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2025 | 2025Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2025 | 2025Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2025 | 2025Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2025 | 2025Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2025 | 2025Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2025 | 2025Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2025 | 2025Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2025 | 2025Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2025 | 2025Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2025 | 2025Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2025 | 2025Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2025 | 2025Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2025 | 2025Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2025 | 2025Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2025 | 2025Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2025 | 2025Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2025 | 2025Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2025 | 2025Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2025 | 2025Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2025 | 2025Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2025 | 2025Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2025 | 2025Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2025 | 2025Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2025 | 2025Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2025 | 2025Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2025 | 2025Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2025 | 2025Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2025 | 2025Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2025 | 2025Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2025 | 2025Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2025 | 2025Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2025 | 2025Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2025 | 2025Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2025 | 2025Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2025 | 2025Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2025 | 2025Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2025 | 2025Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2025 | 2025Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2025 | 2025Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2025 | 2025Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2025 | 2025Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2025 | 2025Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2025 | 2025Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2025 | 2025Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2025 | 2025Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2025 | 2025Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2025 | 2025Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2025 | 2025Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2025 | 2025Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2025 | 2025Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2025 | 2025Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2025 | 2025Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2025 | 2025Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | 2025Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2025 | 2025Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2025 | 2025Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2025 | 2025Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2025 | 2025Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2025 | 2025Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2025 | 2025Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2025 | 2025Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2025 | 2025Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2025 | 2025Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2025 | 2025Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2025 | 2025Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2025 | 2025Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2025 | 2025Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2025 | 2025Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2025 | 2025Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2025 | 2025Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2025 | 2025Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2025 | 2025Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2025 | 2025Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2025 | 2025Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2025 | 2025Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2025 | 2025Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2025 | 2025Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2025 | 2025Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2025 | 2025Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2025 | 2025Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2025 | 2025Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2025 | 2025Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2025 | 2025Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2025 | 2025Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2025 | 2025Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2025 | 2025Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2025 | 2025Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2025 | 2025Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2025 | 2025Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2025 | 2025Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2025 | 2025Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2025 | 2025Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2025 | 2025Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2025 | 2025Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2025 | 2025Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2025 | 2025Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2025 | 2025Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2025 | 2025Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2025 | 2025Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2025 | 2025Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2025 | 2025Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2025 | 2025Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2025 | 2025Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2025 | 2025Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2026 | 2026Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2026 | 2026Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2026 | 2026Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2026 | 2026Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2026 | 2026Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2026 | 2026Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2026 | 2026Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2026 | 2026Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2026 | 2026Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2026 | 2026Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2026 | 2026Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2026 | 2026Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2026 | 2026Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2026 | 2026Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2026 | 2026Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2026 | 2026Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2026 | 2026Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2026 | 2026Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2026 | 2026Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2026 | 2026Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2026 | 2026Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2026 | 2026Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2026 | 2026Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2026 | 2026Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2026 | 2026Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2026 | 2026Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2026 | 2026Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2026 | 2026Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2026 | 2026Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2026 | 2026Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2026 | 2026Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2026 | 2026Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2026 | 2026Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2026 | 2026Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2026 | 2026Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2026 | 2026Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2026 | 2026Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2026 | 2026Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2026 | 2026Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2026 | 2026Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2026 | 2026Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2026 | 2026Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2026 | 2026Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2026 | 2026Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2026 | 2026Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2026 | 2026Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2026 | 2026Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2026 | 2026Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2026 | 2026Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2026 | 2026Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2026 | 2026Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2026 | 2026Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2026 | 2026Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2026 | 2026Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2026 | 2026Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2026 | 2026Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2026 | 2026Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2026 | 2026Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2026 | 2026Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2026 | 2026Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2026 | 2026Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2026 | 2026Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2026 | 2026Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2026 | 2026Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2026 | 2026Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2026 | 2026Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2026 | 2026Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2026 | 2026Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2026 | 2026Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2026 | 2026Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2026 | 2026Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2026 | 2026Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2026 | 2026Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2026 | 2026Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2026 | 2026Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2026 | 2026Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2026 | 2026Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2026 | 2026Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2026 | 2026Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2026 | 2026Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2026 | 2026Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2026 | 2026Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2026 | 2026Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2026 | 2026Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2026 | 2026Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2026 | 2026Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2026 | 2026Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2026 | 2026Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2026 | 2026Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2026 | 2026Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2026 | 2026Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2026 | 2026Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2026 | 2026Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2026 | 2026Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2026 | 2026Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2026 | 2026Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2026 | 2026Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2026 | 2026Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2026 | 2026Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2026 | 2026Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2026 | 2026Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2026 | 2026Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2026 | 2026Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2026 | 2026Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2026 | 2026Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2026 | 2026Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2026 | 2026Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2026 | 2026Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2026 | 2026Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2026 | 2026Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2026 | 2026Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2026 | 2026Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2026 | 2026Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2026 | 2026Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2026 | 2026Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2026 | 2026Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2026 | 2026Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2026 | 2026Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2026 | 2026Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2026 | 2026Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2026 | 2026Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2026 | 2026Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2026 | 2026Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2026 | 2026Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2026 | 2026Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2026 | 2026Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2026 | 2026Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2026 | 2026Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2026 | 2026Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2026 | 2026Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2026 | 2026Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2026 | 2026Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2026 | 2026Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2026 | 2026Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2026 | 2026Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2026 | 2026Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2026 | 2026Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2026 | 2026Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2026 | 2026Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2026 | 2026Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2026 | 2026Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2026 | 2026Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2026 | 2026Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2026 | 2026Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2026 | 2026Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2026 | 2026Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2026 | 2026Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2026 | 2026Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2026 | 2026Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2026 | 2026Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2026 | 2026Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2026 | 2026Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2026 | 2026Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2026 | 2026Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2026 | 2026Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2026 | 2026Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2026 | 2026Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2026 | 2026Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2026 | 2026Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2026 | 2026Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2026 | 2026Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2026 | 2026Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2026 | 2026Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2026 | 2026Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2026 | 2026Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2026 | 2026Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2026 | 2026Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2026 | 2026Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2026 | 2026Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2026 | 2026Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2026 | 2026Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2026 | 2026Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2026 | 2026Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2026 | 2026Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2026 | 2026Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2026 | 2026Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2026 | 2026Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2026 | 2026Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2026 | 2026Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2026 | 2026Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2026 | 2026Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2026 | 2026Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2026 | 2026Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2026 | 2026Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2026 | 2026Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2026 | 2026Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2026 | 2026Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2026 | 2026Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2026 | 2026Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2026 | 2026Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2026 | 2026Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2026 | 2026Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2026 | 2026Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2026 | 2026Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2026 | 2026Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2026 | 2026Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2026 | 2026Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2026 | 2026Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2026 | 2026Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2026 | 2026Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2026 | 2026Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2026 | 2026Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2026 | 2026Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2026 | 2026Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2026 | 2026Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2026 | 2026Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2026 | 2026Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2026 | 2026Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2026 | 2026Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2026 | 2026Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2026 | 2026Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2026 | 2026Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2026 | 2026Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2026 | 2026Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2026 | 2026Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2026 | 2026Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2026 | 2026Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2026 | 2026Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2026 | 2026Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2026 | 2026Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2026 | 2026Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2026 | 2026Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2026 | 2026Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2026 | 2026Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2026 | 2026Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2026 | 2026Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2026 | 2026Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2026 | 2026Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2026 | 2026Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2026 | 2026Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2026 | 2026Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2026 | 2026Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2026 | 2026Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2026 | 2026Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2026 | 2026Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2026 | 2026Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2026 | 2026Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2027 | 2027Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2027 | 2027Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2027 | 2027Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2027 | 2027Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2027 | 2027Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2027 | 2027Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2027 | 2027Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2027 | 2027Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2027 | 2027Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2027 | 2027Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2027 | 2027Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2027 | 2027Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2027 | 2027Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2027 | 2027Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2027 | 2027Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2027 | 2027Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2027 | 2027Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2027 | 2027Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2027 | 2027Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2027 | 2027Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2027 | 2027Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2027 | 2027Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2027 | 2027Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2027 | 2027Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2027 | 2027Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2027 | 2027Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2027 | 2027Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2027 | 2027Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2027 | 2027Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2027 | 2027Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2027 | 2027Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2027 | 2027Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2027 | 2027Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2027 | 2027Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2027 | 2027Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2027 | 2027Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2027 | 2027Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2027 | 2027Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2027 | 2027Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2027 | 2027Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2027 | 2027Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2027 | 2027Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2027 | 2027Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | 2027Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2027 | 2027Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2027 | 2027Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2027 | 2027Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2027 | 2027Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2027 | 2027Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2027 | 2027Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2027 | 2027Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2027 | 2027Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2027 | 2027Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2027 | 2027Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2027 | 2027Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2027 | 2027Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2027 | 2027Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2027 | 2027Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2027 | 2027Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2027 | 2027Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2027 | 2027Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2027 | 2027Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2027 | 2027Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2027 | 2027Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2027 | 2027Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2027 | 2027Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2027 | 2027Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2027 | 2027Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2027 | 2027Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2027 | 2027Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2027 | 2027Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2027 | 2027Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2027 | 2027Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2027 | 2027Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2027 | 2027Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2027 | 2027Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2027 | 2027Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2027 | 2027Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2027 | 2027Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2027 | 2027Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2027 | 2027Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2027 | 2027Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2027 | 2027Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2027 | 2027Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2027 | 2027Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2027 | 2027Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2027 | 2027Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2027 | 2027Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2027 | 2027Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2027 | 2027Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2027 | 2027Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2027 | 2027Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2027 | 2027Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2027 | 2027Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2027 | 2027Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2027 | 2027Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2027 | 2027Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2027 | 2027Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2027 | 2027Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | 2027Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2027 | 2027Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2027 | 2027Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2027 | 2027Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2027 | 2027Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2027 | 2027Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2027 | 2027Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2027 | 2027Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2027 | 2027Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2027 | 2027Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2027 | 2027Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2027 | 2027Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2027 | 2027Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2027 | 2027Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2027 | 2027Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2027 | 2027Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2027 | 2027Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2027 | 2027Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2027 | 2027Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2027 | 2027Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2027 | 2027Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2027 | 2027Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2027 | 2027Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2027 | 2027Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2027 | 2027Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2027 | 2027Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2027 | 2027Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2027 | 2027Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2027 | 2027Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2027 | 2027Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2027 | 2027Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2027 | 2027Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2027 | 2027Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2027 | 2027Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2027 | 2027Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2027 | 2027Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2027 | 2027Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2027 | 2027Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2027 | 2027Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2027 | 2027Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2027 | 2027Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2027 | 2027Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2027 | 2027Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2027 | 2027Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2027 | 2027Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2027 | 2027Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2027 | 2027Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2027 | 2027Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2027 | 2027Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2027 | 2027Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2027 | 2027Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2027 | 2027Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2027 | 2027Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2027 | 2027Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2027 | 2027Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2027 | 2027Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | 2027Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2027 | 2027Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2027 | 2027Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2027 | 2027Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2027 | 2027Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2027 | 2027Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2027 | 2027Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2027 | 2027Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2027 | 2027Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2027 | 2027Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2027 | 2027Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2027 | 2027Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2027 | 2027Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2027 | 2027Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2027 | 2027Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2027 | 2027Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2027 | 2027Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2027 | 2027Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2027 | 2027Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2027 | 2027Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2027 | 2027Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2027 | 2027Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2027 | 2027Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2027 | 2027Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2027 | 2027Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2027 | 2027Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2027 | 2027Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2027 | 2027Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2027 | 2027Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2027 | 2027Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2027 | 2027Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2027 | 2027Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2027 | 2027Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2027 | 2027Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2027 | 2027Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2027 | 2027Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2027 | 2027Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2027 | 2027Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2027 | 2027Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2027 | 2027Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2027 | 2027Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2027 | 2027Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2027 | 2027Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2027 | 2027Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2027 | 2027Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2027 | 2027Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2027 | 2027Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2027 | 2027Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2027 | 2027Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2027 | 2027Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2027 | 2027Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2027 | 2027Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2027 | 2027Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2027 | 2027Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2027 | 2027Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2027 | 2027Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | 2027Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2027 | 2027Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2027 | 2027Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2027 | 2027Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2027 | 2027Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2027 | 2027Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2027 | 2027Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2027 | 2027Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2027 | 2027Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2027 | 2027Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2027 | 2027Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2027 | 2027Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2027 | 2027Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2027 | 2027Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2027 | 2027Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2027 | 2027Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2027 | 2027Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2027 | 2027Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2027 | 2027Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2027 | 2027Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2027 | 2027Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2027 | 2027Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2027 | 2027Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2027 | 2027Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2027 | 2027Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2027 | 2027Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2027 | 2027Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2027 | 2027Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2027 | 2027Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2027 | 2027Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2027 | 2027Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2028 | 2028Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2028 | 2028Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2028 | 2028Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2028 | 2028Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2028 | 2028Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2028 | 2028Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2028 | 2028Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2028 | 2028Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2028 | 2028Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2028 | 2028Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2028 | 2028Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2028 | 2028Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2028 | 2028Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2028 | 2028Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2028 | 2028Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2028 | 2028Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2028 | 2028Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2028 | 2028Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2028 | 2028Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2028 | 2028Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2028 | 2028Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2028 | 2028Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2028 | 2028Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2028 | 2028Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2028 | 2028Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | 2028Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2028 | 2028Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2028 | 2028Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2028 | 2028Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2028 | 2028Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2028 | 2028Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2028 | 2028Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2028 | 2028Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2028 | 2028Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2028 | 2028Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2028 | 2028Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2028 | 2028Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2028 | 2028Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2028 | 2028Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2028 | 2028Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2028 | 2028Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2028 | 2028Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2028 | 2028Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2028 | 2028Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2028 | 2028Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2028 | 2028Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2028 | 2028Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2028 | 2028Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2028 | 2028Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2028 | 2028Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2028 | 2028Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2028 | 2028Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2028 | 2028Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2028 | 2028Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2028 | 2028Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2028 | 2028Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2028 | 2028Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2028 | 2028Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2028 | 2028Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2028 | 2028Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2028 | 2028Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2028 | 2028Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2028 | 2028Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2028 | 2028Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2028 | 2028Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2028 | 2028Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2028 | 2028Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2028 | 2028Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2028 | 2028Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2028 | 2028Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2028 | 2028Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2028 | 2028Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2028 | 2028Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2028 | 2028Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2028 | 2028Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2028 | 2028Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2028 | 2028Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2028 | 2028Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2028 | 2028Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2028 | 2028Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2028 | 2028Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | 2028Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2028 | 2028Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2028 | 2028Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2028 | 2028Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2028 | 2028Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2028 | 2028Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2028 | 2028Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2028 | 2028Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2028 | 2028Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2028 | 2028Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2028 | 2028Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2028 | 2028Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2028 | 2028Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2028 | 2028Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2028 | 2028Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2028 | 2028Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2028 | 2028Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2028 | 2028Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2028 | 2028Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2028 | 2028Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2028 | 2028Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2028 | 2028Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2028 | 2028Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2028 | 2028Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2028 | 2028Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2028 | 2028Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2028 | 2028Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2028 | 2028Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2028 | 2028Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2028 | 2028Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2028 | 2028Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2028 | 2028Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2028 | 2028Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2028 | 2028Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2028 | 2028Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2028 | 2028Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2028 | 2028Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2028 | 2028Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2028 | 2028Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2028 | 2028Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2028 | 2028Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2028 | 2028Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2028 | 2028Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2028 | 2028Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2028 | 2028Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2028 | 2028Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2028 | 2028Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2028 | 2028Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2028 | 2028Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2028 | 2028Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2028 | 2028Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2028 | 2028Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2028 | 2028Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2028 | 2028Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2028 | 2028Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2028 | 2028Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | 2028Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2028 | 2028Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2028 | 2028Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2028 | 2028Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2028 | 2028Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2028 | 2028Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2028 | 2028Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2028 | 2028Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2028 | 2028Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2028 | 2028Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2028 | 2028Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2028 | 2028Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2028 | 2028Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2028 | 2028Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2028 | 2028Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2028 | 2028Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2028 | 2028Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2028 | 2028Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2028 | 2028Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2028 | 2028Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2028 | 2028Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2028 | 2028Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2028 | 2028Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2028 | 2028Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2028 | 2028Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2028 | 2028Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2028 | 2028Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2028 | 2028Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2028 | 2028Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2028 | 2028Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2028 | 2028Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2028 | 2028Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2028 | 2028Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2028 | 2028Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2028 | 2028Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2028 | 2028Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2028 | 2028Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2028 | 2028Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2028 | 2028Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2028 | 2028Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2028 | 2028Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2028 | 2028Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2028 | 2028Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2028 | 2028Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2028 | 2028Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2028 | 2028Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2028 | 2028Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2028 | 2028Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2028 | 2028Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2028 | 2028Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2028 | 2028Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2028 | 2028Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2028 | 2028Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2028 | 2028Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2028 | 2028Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2028 | 2028Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | 2028Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2028 | 2028Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2028 | 2028Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2028 | 2028Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2028 | 2028Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2028 | 2028Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2028 | 2028Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2028 | 2028Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2028 | 2028Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2028 | 2028Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2028 | 2028Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2028 | 2028Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2028 | 2028Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2028 | 2028Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2028 | 2028Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2028 | 2028Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2028 | 2028Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2028 | 2028Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2028 | 2028Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2028 | 2028Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2028 | 2028Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2028 | 2028Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2028 | 2028Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2028 | 2028Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2028 | 2028Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2028 | 2028Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2028 | 2028Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2028 | 2028Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2028 | 2028Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2028 | 2028Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2028 | 2028Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2028 | 2028Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2028 | 2028Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2028 | 2028Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2028 | 2028Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2028 | 2028Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2028 | 2028Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2028 | 2028Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2028 | 2028Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2028 | 2028Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2028 | 2028Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2028 | 2028Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2028 | 2028Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2028 | 2028Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2028 | 2028Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2028 | 2028Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2028 | 2028Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2028 | 2028Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2028 | 2028Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2029 | 2029Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2029 | 2029Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2029 | 2029Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2029 | 2029Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2029 | 2029Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2029 | 2029Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2029 | 2029Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 2029Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2029 | 2029Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2029 | 2029Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2029 | 2029Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2029 | 2029Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2029 | 2029Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2029 | 2029Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2029 | 2029Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2029 | 2029Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2029 | 2029Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2029 | 2029Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2029 | 2029Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2029 | 2029Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2029 | 2029Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2029 | 2029Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2029 | 2029Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2029 | 2029Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2029 | 2029Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2029 | 2029Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2029 | 2029Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2029 | 2029Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2029 | 2029Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2029 | 2029Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2029 | 2029Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2029 | 2029Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2029 | 2029Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2029 | 2029Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2029 | 2029Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2029 | 2029Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2029 | 2029Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2029 | 2029Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2029 | 2029Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2029 | 2029Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2029 | 2029Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2029 | 2029Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2029 | 2029Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2029 | 2029Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2029 | 2029Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2029 | 2029Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2029 | 2029Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2029 | 2029Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2029 | 2029Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2029 | 2029Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2029 | 2029Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2029 | 2029Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2029 | 2029Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2029 | 2029Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2029 | 2029Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2029 | 2029Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2029 | 2029Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2029 | 2029Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2029 | 2029Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2029 | 2029Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2029 | 2029Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2029 | 2029Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2029 | 2029Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 2029Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2029 | 2029Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2029 | 2029Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2029 | 2029Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2029 | 2029Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2029 | 2029Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2029 | 2029Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2029 | 2029Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2029 | 2029Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2029 | 2029Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2029 | 2029Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2029 | 2029Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2029 | 2029Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2029 | 2029Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2029 | 2029Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2029 | 2029Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2029 | 2029Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2029 | 2029Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2029 | 2029Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2029 | 2029Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2029 | 2029Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2029 | 2029Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2029 | 2029Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2029 | 2029Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2029 | 2029Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2029 | 2029Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2029 | 2029Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2029 | 2029Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2029 | 2029Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2029 | 2029Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2029 | 2029Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2029 | 2029Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2029 | 2029Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2029 | 2029Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2029 | 2029Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2029 | 2029Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2029 | 2029Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2029 | 2029Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2029 | 2029Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2029 | 2029Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2029 | 2029Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2029 | 2029Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2029 | 2029Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2029 | 2029Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2029 | 2029Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2029 | 2029Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2029 | 2029Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2029 | 2029Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2029 | 2029Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2029 | 2029Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2029 | 2029Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2029 | 2029Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2029 | 2029Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2029 | 2029Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2029 | 2029Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2029 | 2029Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 2029Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2029 | 2029Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2029 | 2029Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2029 | 2029Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2029 | 2029Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2029 | 2029Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2029 | 2029Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2029 | 2029Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2029 | 2029Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2029 | 2029Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2029 | 2029Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2029 | 2029Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2029 | 2029Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2029 | 2029Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2029 | 2029Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2029 | 2029Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2029 | 2029Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2029 | 2029Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2029 | 2029Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2029 | 2029Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2029 | 2029Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2029 | 2029Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2029 | 2029Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2029 | 2029Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2029 | 2029Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2029 | 2029Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2029 | 2029Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2029 | 2029Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2029 | 2029Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2029 | 2029Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2029 | 2029Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2029 | 2029Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2029 | 2029Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2029 | 2029Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2029 | 2029Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2029 | 2029Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2029 | 2029Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2029 | 2029Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2029 | 2029Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2029 | 2029Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2029 | 2029Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2029 | 2029Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2029 | 2029Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2029 | 2029Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2029 | 2029Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2029 | 2029Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2029 | 2029Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2029 | 2029Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2029 | 2029Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2029 | 2029Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2029 | 2029Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2029 | 2029Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2029 | 2029Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2029 | 2029Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2029 | 2029Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2029 | 2029Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 2029Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2029 | 2029Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2029 | 2029Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2029 | 2029Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2029 | 2029Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2029 | 2029Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2029 | 2029Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2029 | 2029Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2029 | 2029Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2029 | 2029Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2029 | 2029Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2029 | 2029Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2029 | 2029Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2029 | 2029Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2029 | 2029Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2029 | 2029Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2029 | 2029Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2029 | 2029Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2029 | 2029Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2029 | 2029Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2029 | 2029Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2029 | 2029Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2029 | 2029Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2029 | 2029Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2029 | 2029Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2029 | 2029Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2029 | 2029Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2029 | 2029Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2029 | 2029Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2029 | 2029Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2029 | 2029Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2029 | 2029Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2029 | 2029Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2029 | 2029Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2029 | 2029Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2029 | 2029Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2029 | 2029Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2029 | 2029Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2029 | 2029Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2029 | 2029Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2029 | 2029Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2029 | 2029Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2029 | 2029Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2029 | 2029Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2029 | 2029Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2029 | 2029Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2029 | 2029Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2029 | 2029Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2029 | 2029Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2029 | 2029Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2029 | 2029Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2029 | 2029Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2029 | 2029Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2029 | 2029Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2029 | 2029Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2029 | 2029Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 2029Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2029 | 2029Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2029 | 2029Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2029 | 2029Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2029 | 2029Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2029 | 2029Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2029 | 2029Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2029 | 2029Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2029 | 2029Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2029 | 2029Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2029 | 2029Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2030 | 2030Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2030 | 2030Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2030 | 2030Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2030 | 2030Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2030 | 2030Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2030 | 2030Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2030 | 2030Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2030 | 2030Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2030 | 2030Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2030 | 2030Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2030 | 2030Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2030 | 2030Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2030 | 2030Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2030 | 2030Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2030 | 2030Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2030 | 2030Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2030 | 2030Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2030 | 2030Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2030 | 2030Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2030 | 2030Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2030 | 2030Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2030 | 2030Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2030 | 2030Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2030 | 2030Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2030 | 2030Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2030 | 2030Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2030 | 2030Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2030 | 2030Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2030 | 2030Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2030 | 2030Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2030 | 2030Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2030 | 2030Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2030 | 2030Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2030 | 2030Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2030 | 2030Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2030 | 2030Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2030 | 2030Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2030 | 2030Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2030 | 2030Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2030 | 2030Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2030 | 2030Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2030 | 2030Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2030 | 2030Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2030 | 2030Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2030 | 2030Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 2030Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2030 | 2030Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2030 | 2030Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2030 | 2030Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2030 | 2030Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2030 | 2030Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2030 | 2030Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2030 | 2030Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2030 | 2030Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2030 | 2030Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2030 | 2030Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2030 | 2030Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2030 | 2030Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2030 | 2030Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2030 | 2030Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2030 | 2030Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2030 | 2030Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2030 | 2030Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2030 | 2030Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2030 | 2030Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2030 | 2030Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2030 | 2030Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2030 | 2030Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2030 | 2030Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2030 | 2030Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2030 | 2030Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2030 | 2030Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2030 | 2030Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2030 | 2030Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2030 | 2030Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2030 | 2030Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2030 | 2030Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2030 | 2030Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2030 | 2030Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2030 | 2030Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2030 | 2030Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2030 | 2030Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2030 | 2030Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2030 | 2030Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2030 | 2030Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2030 | 2030Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2030 | 2030Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2030 | 2030Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2030 | 2030Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2030 | 2030Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2030 | 2030Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2030 | 2030Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2030 | 2030Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2030 | 2030Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2030 | 2030Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2030 | 2030Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2030 | 2030Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2030 | 2030Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2030 | 2030Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2030 | 2030Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2030 | 2030Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 2030Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2030 | 2030Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2030 | 2030Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2030 | 2030Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2030 | 2030Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2030 | 2030Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2030 | 2030Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2030 | 2030Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2030 | 2030Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2030 | 2030Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2030 | 2030Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2030 | 2030Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2030 | 2030Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2030 | 2030Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2030 | 2030Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2030 | 2030Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2030 | 2030Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2030 | 2030Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2030 | 2030Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2030 | 2030Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2030 | 2030Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2030 | 2030Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2030 | 2030Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2030 | 2030Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2030 | 2030Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2030 | 2030Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2030 | 2030Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2030 | 2030Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2030 | 2030Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2030 | 2030Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2030 | 2030Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2030 | 2030Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2030 | 2030Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2030 | 2030Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2030 | 2030Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2030 | 2030Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2030 | 2030Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2030 | 2030Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2030 | 2030Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2030 | 2030Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2030 | 2030Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2030 | 2030Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2030 | 2030Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2030 | 2030Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2030 | 2030Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2030 | 2030Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2030 | 2030Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2030 | 2030Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2030 | 2030Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2030 | 2030Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2030 | 2030Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2030 | 2030Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2030 | 2030Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2030 | 2030Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2030 | 2030Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2030 | 2030Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 2030Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2030 | 2030Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2030 | 2030Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2030 | 2030Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2030 | 2030Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2030 | 2030Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2030 | 2030Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2030 | 2030Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2030 | 2030Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2030 | 2030Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2030 | 2030Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2030 | 2030Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2030 | 2030Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2030 | 2030Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2030 | 2030Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2030 | 2030Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2030 | 2030Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2030 | 2030Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2030 | 2030Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2030 | 2030Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2030 | 2030Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2030 | 2030Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2030 | 2030Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2030 | 2030Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2030 | 2030Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2030 | 2030Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2030 | 2030Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2030 | 2030Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2030 | 2030Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2030 | 2030Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2030 | 2030Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2030 | 2030Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2030 | 2030Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2030 | 2030Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2030 | 2030Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2030 | 2030Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2030 | 2030Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2030 | 2030Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2030 | 2030Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2030 | 2030Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2030 | 2030Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2030 | 2030Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2030 | 2030Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2030 | 2030Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2030 | 2030Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2030 | 2030Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2030 | 2030Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2030 | 2030Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2030 | 2030Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2030 | 2030Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2030 | 2030Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2030 | 2030Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2030 | 2030Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2030 | 2030Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2030 | 2030Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2030 | 2030Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 2030Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2030 | 2030Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2030 | 2030Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2030 | 2030Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2030 | 2030Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2030 | 2030Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2030 | 2030Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2030 | 2030Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2030 | 2030Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2030 | 2030Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2030 | 2030Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2030 | 2030Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2030 | 2030Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2030 | 2030Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2030 | 2030Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2030 | 2030Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2030 | 2030Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2030 | 2030Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2030 | 2030Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2030 | 2030Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2030 | 2030Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2030 | 2030Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2030 | 2030Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2030 | 2030Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2030 | 2030Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2030 | 2030Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2030 | 2030Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2030 | 2030Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2030 | 2030Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2031 | 2031Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2031 | 2031Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2031 | 2031Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2031 | 2031Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2031 | 2031Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2031 | 2031Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2031 | 2031Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2031 | 2031Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2031 | 2031Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2031 | 2031Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2031 | 2031Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2031 | 2031Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2031 | 2031Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2031 | 2031Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2031 | 2031Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2031 | 2031Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2031 | 2031Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2031 | 2031Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2031 | 2031Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2031 | 2031Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2031 | 2031Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2031 | 2031Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2031 | 2031Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2031 | 2031Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2031 | 2031Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2031 | 2031Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2031 | 2031Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | 2031Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2031 | 2031Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2031 | 2031Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2031 | 2031Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2031 | 2031Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2031 | 2031Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2031 | 2031Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2031 | 2031Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2031 | 2031Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2031 | 2031Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2031 | 2031Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2031 | 2031Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2031 | 2031Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2031 | 2031Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2031 | 2031Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2031 | 2031Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2031 | 2031Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2031 | 2031Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2031 | 2031Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2031 | 2031Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2031 | 2031Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2031 | 2031Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2031 | 2031Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2031 | 2031Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2031 | 2031Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2031 | 2031Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2031 | 2031Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2031 | 2031Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2031 | 2031Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2031 | 2031Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2031 | 2031Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2031 | 2031Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2031 | 2031Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2031 | 2031Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2031 | 2031Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2031 | 2031Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2031 | 2031Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2031 | 2031Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2031 | 2031Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2031 | 2031Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2031 | 2031Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2031 | 2031Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2031 | 2031Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2031 | 2031Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2031 | 2031Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2031 | 2031Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2031 | 2031Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2031 | 2031Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2031 | 2031Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2031 | 2031Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2031 | 2031Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2031 | 2031Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2031 | 2031Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2031 | 2031Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2031 | 2031Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2031 | 2031Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | 2031Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2031 | 2031Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2031 | 2031Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2031 | 2031Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2031 | 2031Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2031 | 2031Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2031 | 2031Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2031 | 2031Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2031 | 2031Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2031 | 2031Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2031 | 2031Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2031 | 2031Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2031 | 2031Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2031 | 2031Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2031 | 2031Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2031 | 2031Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2031 | 2031Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2031 | 2031Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2031 | 2031Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2031 | 2031Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2031 | 2031Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2031 | 2031Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2031 | 2031Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2031 | 2031Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2031 | 2031Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2031 | 2031Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2031 | 2031Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2031 | 2031Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2031 | 2031Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2031 | 2031Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2031 | 2031Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2031 | 2031Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2031 | 2031Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2031 | 2031Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2031 | 2031Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2031 | 2031Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2031 | 2031Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2031 | 2031Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2031 | 2031Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2031 | 2031Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2031 | 2031Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2031 | 2031Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2031 | 2031Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2031 | 2031Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2031 | 2031Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2031 | 2031Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2031 | 2031Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2031 | 2031Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2031 | 2031Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2031 | 2031Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2031 | 2031Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2031 | 2031Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2031 | 2031Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2031 | 2031Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2031 | 2031Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2031 | 2031Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | 2031Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2031 | 2031Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2031 | 2031Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2031 | 2031Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2031 | 2031Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2031 | 2031Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2031 | 2031Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2031 | 2031Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2031 | 2031Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2031 | 2031Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2031 | 2031Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2031 | 2031Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2031 | 2031Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2031 | 2031Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2031 | 2031Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2031 | 2031Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2031 | 2031Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2031 | 2031Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2031 | 2031Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2031 | 2031Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2031 | 2031Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2031 | 2031Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2031 | 2031Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2031 | 2031Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2031 | 2031Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2031 | 2031Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2031 | 2031Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2031 | 2031Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2031 | 2031Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2031 | 2031Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2031 | 2031Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2031 | 2031Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2031 | 2031Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2031 | 2031Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2031 | 2031Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2031 | 2031Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2031 | 2031Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2031 | 2031Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2031 | 2031Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2031 | 2031Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2031 | 2031Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2031 | 2031Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2031 | 2031Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2031 | 2031Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2031 | 2031Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2031 | 2031Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2031 | 2031Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2031 | 2031Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2031 | 2031Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2031 | 2031Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2031 | 2031Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2031 | 2031Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2031 | 2031Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2031 | 2031Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2031 | 2031Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2031 | 2031Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | 2031Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2031 | 2031Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2031 | 2031Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2031 | 2031Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2031 | 2031Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2031 | 2031Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2031 | 2031Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2031 | 2031Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2031 | 2031Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2031 | 2031Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2031 | 2031Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2031 | 2031Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2031 | 2031Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2031 | 2031Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2031 | 2031Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2031 | 2031Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2031 | 2031Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2031 | 2031Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2031 | 2031Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2031 | 2031Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2031 | 2031Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2031 | 2031Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2031 | 2031Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2031 | 2031Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2031 | 2031Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2031 | 2031Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2031 | 2031Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2031 | 2031Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2031 | 2031Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2031 | 2031Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2031 | 2031Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2031 | 2031Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2031 | 2031Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2031 | 2031Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2031 | 2031Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2031 | 2031Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2031 | 2031Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2031 | 2031Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2031 | 2031Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2031 | 2031Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2031 | 2031Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2031 | 2031Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2031 | 2031Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2031 | 2031Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2031 | 2031Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2031 | 2031Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2031 | 2031Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2033 | 2033Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2033 | 2033Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2033 | 2033Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2033 | 2033Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2033 | 2033Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2033 | 2033Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2033 | 2033Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2033 | 2033Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2033 | 2033Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2033 | 2033Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2033 | 2033Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2033 | 2033Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2033 | 2033Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2033 | 2033Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2033 | 2033Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2033 | 2033Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2033 | 2033Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2033 | 2033Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2033 | 2033Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2033 | 2033Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2033 | 2033Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2033 | 2033Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2033 | 2033Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2033 | 2033Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2033 | 2033Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2033 | 2033Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2033 | 2033Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2033 | 2033Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2033 | 2033Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2033 | 2033Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2033 | 2033Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2033 | 2033Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2033 | 2033Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2033 | 2033Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2033 | 2033Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2033 | 2033Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2033 | 2033Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2033 | 2033Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2033 | 2033Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2033 | 2033Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2033 | 2033Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2033 | 2033Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2033 | 2033Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2033 | 2033Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2033 | 2033Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2033 | 2033Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2033 | 2033Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2033 | 2033Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2033 | 2033Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2033 | 2033Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2033 | 2033Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2033 | 2033Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2033 | 2033Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2033 | 2033Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2033 | 2033Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2033 | 2033Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2033 | 2033Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2033 | 2033Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2033 | 2033Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2033 | 2033Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2033 | 2033Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2033 | 2033Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2033 | 2033Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2033 | 2033Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2033 | 2033Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2033 | 2033Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2033 | 2033Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2033 | 2033Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2033 | 2033Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2033 | 2033Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2033 | 2033Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2033 | 2033Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2033 | 2033Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2033 | 2033Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2033 | 2033Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2033 | 2033Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2033 | 2033Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2033 | 2033Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2033 | 2033Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2033 | 2033Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2033 | 2033Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2033 | 2033Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2033 | 2033Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2033 | 2033Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2033 | 2033Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2033 | 2033Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2033 | 2033Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2033 | 2033Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2033 | 2033Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2033 | 2033Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2033 | 2033Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2033 | 2033Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2033 | 2033Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2033 | 2033Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2033 | 2033Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2033 | 2033Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2033 | 2033Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2033 | 2033Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2033 | 2033Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2033 | 2033Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2033 | 2033Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2033 | 2033Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2033 | 2033Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2033 | 2033Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2033 | 2033Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2033 | 2033Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2033 | 2033Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2033 | 2033Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2033 | 2033Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2033 | 2033Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2033 | 2033Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2033 | 2033Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2033 | 2033Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2033 | 2033Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2033 | 2033Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2033 | 2033Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2033 | 2033Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2033 | 2033Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2033 | 2033Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2033 | 2033Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2033 | 2033Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2033 | 2033Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2033 | 2033Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2033 | 2033Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2033 | 2033Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2033 | 2033Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2033 | 2033Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2033 | 2033Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2033 | 2033Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2033 | 2033Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2033 | 2033Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2033 | 2033Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2033 | 2033Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2033 | 2033Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2033 | 2033Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2033 | 2033Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2033 | 2033Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2033 | 2033Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2033 | 2033Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2033 | 2033Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2033 | 2033Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2033 | 2033Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2033 | 2033Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2033 | 2033Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2033 | 2033Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2033 | 2033Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2033 | 2033Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2033 | 2033Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2033 | 2033Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2033 | 2033Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2033 | 2033Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2033 | 2033Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2033 | 2033Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2033 | 2033Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2033 | 2033Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2033 | 2033Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2033 | 2033Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2033 | 2033Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2033 | 2033Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2033 | 2033Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2033 | 2033Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2033 | 2033Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2033 | 2033Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2033 | 2033Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2033 | 2033Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2033 | 2033Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2033 | 2033Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2033 | 2033Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2033 | 2033Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2033 | 2033Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2033 | 2033Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2033 | 2033Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2033 | 2033Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2033 | 2033Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2033 | 2033Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2033 | 2033Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2033 | 2033Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2033 | 2033Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2033 | 2033Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2033 | 2033Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2033 | 2033Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2033 | 2033Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2033 | 2033Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2033 | 2033Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2033 | 2033Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2033 | 2033Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2033 | 2033Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2033 | 2033Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2033 | 2033Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2033 | 2033Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2033 | 2033Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2033 | 2033Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2033 | 2033Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2033 | 2033Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2033 | 2033Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2033 | 2033Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2033 | 2033Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2033 | 2033Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2033 | 2033Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2033 | 2033Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2033 | 2033Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2033 | 2033Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2033 | 2033Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2033 | 2033Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2033 | 2033Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2033 | 2033Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2033 | 2033Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2033 | 2033Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2033 | 2033Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2033 | 2033Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2033 | 2033Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2033 | 2033Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2033 | 2033Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2033 | 2033Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2033 | 2033Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2033 | 2033Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2033 | 2033Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2033 | 2033Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2033 | 2033Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2033 | 2033Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2033 | 2033Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2033 | 2033Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2033 | 2033Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2033 | 2033Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2033 | 2033Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2033 | 2033Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2033 | 2033Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2033 | 2033Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2033 | 2033Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2033 | 2033Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2033 | 2033Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2033 | 2033Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2033 | 2033Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2033 | 2033Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2033 | 2033Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2033 | 2033Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2033 | 2033Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2035 | 2035Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2035 | 2035Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2035 | 2035Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2035 | 2035Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2035 | 2035Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2035 | 2035Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2035 | 2035Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2035 | 2035Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2035 | 2035Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2035 | 2035Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2035 | 2035Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2035 | 2035Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2035 | 2035Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2035 | 2035Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2035 | 2035Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2035 | 2035Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2035 | 2035Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2035 | 2035Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2035 | 2035Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2035 | 2035Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2035 | 2035Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2035 | 2035Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2035 | 2035Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2035 | 2035Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2035 | 2035Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2035 | 2035Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2035 | 2035Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2035 | 2035Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2035 | 2035Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2035 | 2035Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2035 | 2035Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2035 | 2035Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2035 | 2035Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2035 | 2035Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2035 | 2035Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2035 | 2035Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2035 | 2035Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2035 | 2035Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2035 | 2035Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2035 | 2035Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2035 | 2035Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2035 | 2035Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2035 | 2035Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2035 | 2035Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2035 | 2035Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2035 | 2035Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2035 | 2035Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2035 | 2035Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2035 | 2035Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2035 | 2035Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2035 | 2035Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2035 | 2035Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2035 | 2035Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2035 | 2035Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2035 | 2035Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2035 | 2035Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2035 | 2035Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2035 | 2035Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2035 | 2035Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2035 | 2035Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2035 | 2035Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2035 | 2035Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2035 | 2035Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2035 | 2035Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2035 | 2035Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2035 | 2035Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2035 | 2035Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2035 | 2035Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2035 | 2035Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2035 | 2035Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2035 | 2035Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2035 | 2035Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2035 | 2035Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2035 | 2035Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2035 | 2035Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2035 | 2035Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2035 | 2035Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2035 | 2035Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2035 | 2035Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2035 | 2035Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2035 | 2035Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2035 | 2035Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2035 | 2035Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2035 | 2035Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2035 | 2035Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2035 | 2035Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2035 | 2035Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2035 | 2035Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2035 | 2035Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2035 | 2035Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2035 | 2035Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2035 | 2035Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2035 | 2035Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2035 | 2035Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2035 | 2035Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2035 | 2035Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2035 | 2035Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2035 | 2035Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2035 | 2035Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2035 | 2035Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2035 | 2035Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2035 | 2035Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2035 | 2035Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2035 | 2035Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2035 | 2035Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2035 | 2035Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2035 | 2035Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2035 | 2035Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2035 | 2035Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2035 | 2035Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2035 | 2035Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2035 | 2035Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2035 | 2035Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2035 | 2035Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2035 | 2035Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2035 | 2035Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2035 | 2035Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2035 | 2035Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2035 | 2035Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2035 | 2035Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2035 | 2035Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2035 | 2035Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2035 | 2035Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2035 | 2035Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2035 | 2035Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2035 | 2035Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2035 | 2035Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2035 | 2035Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2035 | 2035Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2035 | 2035Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2035 | 2035Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2035 | 2035Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2035 | 2035Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2035 | 2035Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2035 | 2035Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2035 | 2035Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2035 | 2035Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2035 | 2035Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2035 | 2035Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2035 | 2035Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2035 | 2035Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2035 | 2035Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2035 | 2035Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2035 | 2035Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2035 | 2035Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2035 | 2035Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2035 | 2035Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2035 | 2035Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2035 | 2035Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2035 | 2035Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2035 | 2035Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2035 | 2035Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2035 | 2035Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2035 | 2035Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2035 | 2035Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2035 | 2035Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2035 | 2035Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2035 | 2035Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2035 | 2035Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2035 | 2035Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2035 | 2035Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2035 | 2035Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2035 | 2035Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2035 | 2035Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2035 | 2035Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2035 | 2035Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2035 | 2035Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2035 | 2035Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2035 | 2035Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2035 | 2035Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2035 | 2035Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2035 | 2035Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2035 | 2035Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2035 | 2035Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2035 | 2035Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2035 | 2035Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2035 | 2035Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2035 | 2035Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2035 | 2035Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2035 | 2035Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2035 | 2035Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2035 | 2035Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2035 | 2035Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2035 | 2035Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2035 | 2035Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2035 | 2035Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2035 | 2035Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2035 | 2035Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2035 | 2035Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2035 | 2035Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2035 | 2035Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2035 | 2035Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2035 | 2035Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2035 | 2035Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2035 | 2035Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2035 | 2035Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2035 | 2035Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2035 | 2035Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2035 | 2035Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2035 | 2035Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2035 | 2035Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2035 | 2035Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2035 | 2035Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2035 | 2035Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2035 | 2035Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2035 | 2035Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2035 | 2035Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2035 | 2035Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2035 | 2035Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2035 | 2035Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2035 | 2035Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2035 | 2035Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2035 | 2035Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2035 | 2035Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2035 | 2035Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2035 | 2035Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2035 | 2035Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2035 | 2035Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2035 | 2035Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2035 | 2035Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2035 | 2035Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2035 | 2035Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2035 | 2035Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2035 | 2035Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2035 | 2035Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2035 | 2035Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2035 | 2035Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2035 | 2035Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2035 | 2035Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2035 | 2035Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2035 | 2035Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2035 | 2035Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2035 | 2035Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2035 | 2035Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2035 | 2035Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2035 | 2035Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2035 | 2035Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2035 | 2035Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2035 | 2035Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2035 | 2035Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2035 | 2035Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2035 | 2035Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2037 | 2037Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2037 | 2037Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2037 | 2037Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2037 | 2037Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2037 | 2037Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2037 | 2037Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2037 | 2037Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2037 | 2037Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2037 | 2037Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2037 | 2037Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2037 | 2037Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2037 | 2037Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2037 | 2037Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2037 | 2037Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2037 | 2037Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2037 | 2037Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2037 | 2037Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2037 | 2037Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2037 | 2037Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2037 | 2037Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2037 | 2037Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2037 | 2037Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2037 | 2037Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2037 | 2037Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2037 | 2037Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2037 | 2037Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2037 | 2037Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2037 | 2037Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2037 | 2037Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 2037Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2037 | 2037Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2037 | 2037Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2037 | 2037Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2037 | 2037Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2037 | 2037Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2037 | 2037Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2037 | 2037Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2037 | 2037Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2037 | 2037Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2037 | 2037Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2037 | 2037Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2037 | 2037Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2037 | 2037Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2037 | 2037Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2037 | 2037Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2037 | 2037Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2037 | 2037Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2037 | 2037Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2037 | 2037Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2037 | 2037Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2037 | 2037Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2037 | 2037Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2037 | 2037Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2037 | 2037Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2037 | 2037Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2037 | 2037Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2037 | 2037Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2037 | 2037Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2037 | 2037Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2037 | 2037Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2037 | 2037Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2037 | 2037Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2037 | 2037Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2037 | 2037Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2037 | 2037Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2037 | 2037Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2037 | 2037Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2037 | 2037Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2037 | 2037Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2037 | 2037Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2037 | 2037Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2037 | 2037Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2037 | 2037Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2037 | 2037Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2037 | 2037Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2037 | 2037Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2037 | 2037Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2037 | 2037Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2037 | 2037Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2037 | 2037Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2037 | 2037Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2037 | 2037Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2037 | 2037Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2037 | 2037Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2037 | 2037Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 2037Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2037 | 2037Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2037 | 2037Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2037 | 2037Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2037 | 2037Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2037 | 2037Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2037 | 2037Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2037 | 2037Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2037 | 2037Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2037 | 2037Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2037 | 2037Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2037 | 2037Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2037 | 2037Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2037 | 2037Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2037 | 2037Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2037 | 2037Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2037 | 2037Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2037 | 2037Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2037 | 2037Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2037 | 2037Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2037 | 2037Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2037 | 2037Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2037 | 2037Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2037 | 2037Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2037 | 2037Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2037 | 2037Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2037 | 2037Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2037 | 2037Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2037 | 2037Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2037 | 2037Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2037 | 2037Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2037 | 2037Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2037 | 2037Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2037 | 2037Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2037 | 2037Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2037 | 2037Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2037 | 2037Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2037 | 2037Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2037 | 2037Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2037 | 2037Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2037 | 2037Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2037 | 2037Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2037 | 2037Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2037 | 2037Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2037 | 2037Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2037 | 2037Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2037 | 2037Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2037 | 2037Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2037 | 2037Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2037 | 2037Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2037 | 2037Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2037 | 2037Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2037 | 2037Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2037 | 2037Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2037 | 2037Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2037 | 2037Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 2037Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2037 | 2037Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2037 | 2037Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2037 | 2037Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2037 | 2037Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2037 | 2037Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2037 | 2037Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2037 | 2037Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2037 | 2037Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2037 | 2037Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2037 | 2037Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2037 | 2037Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2037 | 2037Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2037 | 2037Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2037 | 2037Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2037 | 2037Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2037 | 2037Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2037 | 2037Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2037 | 2037Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2037 | 2037Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2037 | 2037Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2037 | 2037Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2037 | 2037Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2037 | 2037Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2037 | 2037Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2037 | 2037Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2037 | 2037Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2037 | 2037Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2037 | 2037Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2037 | 2037Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2037 | 2037Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2037 | 2037Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2037 | 2037Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2037 | 2037Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2037 | 2037Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2037 | 2037Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2037 | 2037Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2037 | 2037Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2037 | 2037Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2037 | 2037Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2037 | 2037Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2037 | 2037Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2037 | 2037Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2037 | 2037Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2037 | 2037Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2037 | 2037Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2037 | 2037Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2037 | 2037Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2037 | 2037Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2037 | 2037Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2037 | 2037Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2037 | 2037Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2037 | 2037Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2037 | 2037Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2037 | 2037Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2037 | 2037Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 2037Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2037 | 2037Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2037 | 2037Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2037 | 2037Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2037 | 2037Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2037 | 2037Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2037 | 2037Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2037 | 2037Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2037 | 2037Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2037 | 2037Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2037 | 2037Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2037 | 2037Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2037 | 2037Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2037 | 2037Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2037 | 2037Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2037 | 2037Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2037 | 2037Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2037 | 2037Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2037 | 2037Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2037 | 2037Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2037 | 2037Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2037 | 2037Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2037 | 2037Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2037 | 2037Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2037 | 2037Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2037 | 2037Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2037 | 2037Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2037 | 2037Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2037 | 2037Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2037 | 2037Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2037 | 2037Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2037 | 2037Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2037 | 2037Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2037 | 2037Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2037 | 2037Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2037 | 2037Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2037 | 2037Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2037 | 2037Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2037 | 2037Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2037 | 2037Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2037 | 2037Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2037 | 2037Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2037 | 2037Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2037 | 2037Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2037 | 2037Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2038 | 2038Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2038 | 2038Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2038 | 2038Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2038 | 2038Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2038 | 2038Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2038 | 2038Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2038 | 2038Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2038 | 2038Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2038 | 2038Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2038 | 2038Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2038 | 2038Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2038 | 2038Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2038 | 2038Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2038 | 2038Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2038 | 2038Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2038 | 2038Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2038 | 2038Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2038 | 2038Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2038 | 2038Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2038 | 2038Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2038 | 2038Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2038 | 2038Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2038 | 2038Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2038 | 2038Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2038 | 2038Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2038 | 2038Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2038 | 2038Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2038 | 2038Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2038 | 2038Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2038 | 2038Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2038 | 2038Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2038 | 2038Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2038 | 2038Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2038 | 2038Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2038 | 2038Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2038 | 2038Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2038 | 2038Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2038 | 2038Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2038 | 2038Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2038 | 2038Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2038 | 2038Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2038 | 2038Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2038 | 2038Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2038 | 2038Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2038 | 2038Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2038 | 2038Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2038 | 2038Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2038 | 2038Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2038 | 2038Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2038 | 2038Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2038 | 2038Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2038 | 2038Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2038 | 2038Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2038 | 2038Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2038 | 2038Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2038 | 2038Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2038 | 2038Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2038 | 2038Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2038 | 2038Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2038 | 2038Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2038 | 2038Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2038 | 2038Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2038 | 2038Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2038 | 2038Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2038 | 2038Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2038 | 2038Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2038 | 2038Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2038 | 2038Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2038 | 2038Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2038 | 2038Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2038 | 2038Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2038 | 2038Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2038 | 2038Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2038 | 2038Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2038 | 2038Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2038 | 2038Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2038 | 2038Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2038 | 2038Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2038 | 2038Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2038 | 2038Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2038 | 2038Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2038 | 2038Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2038 | 2038Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2038 | 2038Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2038 | 2038Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2038 | 2038Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2038 | 2038Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2038 | 2038Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2038 | 2038Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2038 | 2038Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2038 | 2038Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2038 | 2038Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2038 | 2038Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2038 | 2038Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2038 | 2038Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2038 | 2038Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2038 | 2038Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2038 | 2038Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2038 | 2038Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2038 | 2038Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2038 | 2038Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2038 | 2038Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2038 | 2038Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2038 | 2038Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2038 | 2038Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2038 | 2038Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2038 | 2038Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2038 | 2038Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2038 | 2038Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2038 | 2038Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2038 | 2038Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2038 | 2038Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2038 | 2038Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2038 | 2038Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2038 | 2038Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2038 | 2038Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2038 | 2038Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2038 | 2038Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2038 | 2038Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2038 | 2038Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2038 | 2038Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2038 | 2038Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2038 | 2038Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2038 | 2038Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2038 | 2038Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2038 | 2038Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2038 | 2038Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2038 | 2038Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2038 | 2038Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2038 | 2038Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2038 | 2038Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2038 | 2038Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2038 | 2038Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2038 | 2038Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2038 | 2038Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2038 | 2038Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2038 | 2038Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2038 | 2038Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2038 | 2038Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2038 | 2038Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2038 | 2038Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2038 | 2038Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2038 | 2038Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2038 | 2038Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2038 | 2038Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2038 | 2038Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2038 | 2038Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2038 | 2038Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2038 | 2038Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2038 | 2038Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2038 | 2038Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2038 | 2038Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2038 | 2038Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2038 | 2038Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2038 | 2038Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2038 | 2038Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2038 | 2038Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2038 | 2038Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2038 | 2038Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2038 | 2038Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2038 | 2038Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2038 | 2038Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2038 | 2038Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2038 | 2038Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2038 | 2038Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2038 | 2038Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2038 | 2038Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2038 | 2038Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2038 | 2038Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2038 | 2038Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2038 | 2038Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2038 | 2038Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2038 | 2038Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2038 | 2038Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2038 | 2038Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2038 | 2038Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2038 | 2038Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2038 | 2038Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2038 | 2038Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2038 | 2038Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2038 | 2038Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2038 | 2038Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2038 | 2038Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2038 | 2038Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2038 | 2038Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2038 | 2038Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2038 | 2038Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2038 | 2038Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2038 | 2038Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2038 | 2038Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2038 | 2038Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2038 | 2038Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2038 | 2038Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2038 | 2038Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2038 | 2038Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2038 | 2038Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2038 | 2038Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2038 | 2038Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2038 | 2038Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2038 | 2038Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2038 | 2038Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2038 | 2038Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2038 | 2038Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2038 | 2038Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2038 | 2038Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2038 | 2038Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2038 | 2038Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2038 | 2038Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2038 | 2038Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2038 | 2038Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2038 | 2038Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2038 | 2038Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2038 | 2038Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2038 | 2038Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2038 | 2038Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2038 | 2038Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2038 | 2038Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2038 | 2038Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2038 | 2038Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2038 | 2038Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2038 | 2038Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2038 | 2038Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2038 | 2038Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2038 | 2038Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2038 | 2038Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2038 | 2038Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2038 | 2038Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2038 | 2038Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2038 | 2038Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2038 | 2038Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2038 | 2038Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2038 | 2038Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2038 | 2038Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2038 | 2038Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2038 | 2038Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2038 | 2038Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2038 | 2038Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2041 | 2041Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2041 | 2041Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2041 | 2041Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2041 | 2041Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2041 | 2041Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2041 | 2041Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2041 | 2041Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2041 | 2041Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2041 | 2041Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2041 | 2041Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2041 | 2041Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2041 | 2041Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2041 | 2041Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2041 | 2041Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2041 | 2041Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2041 | 2041Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2041 | 2041Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2041 | 2041Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2041 | 2041Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2041 | 2041Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2041 | 2041Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2041 | 2041Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2041 | 2041Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2041 | 2041Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2041 | 2041Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2041 | 2041Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2041 | 2041Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2041 | 2041Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2041 | 2041Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2041 | 2041Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2041 | 2041Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2041 | 2041Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2041 | 2041Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2041 | 2041Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2041 | 2041Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2041 | 2041Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2041 | 2041Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2041 | 2041Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2041 | 2041Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2041 | 2041Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2041 | 2041Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2041 | 2041Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2041 | 2041Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2041 | 2041Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2041 | 2041Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2041 | 2041Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2041 | 2041Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2041 | 2041Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2041 | 2041Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2041 | 2041Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2041 | 2041Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2041 | 2041Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2041 | 2041Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2041 | 2041Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2041 | 2041Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2041 | 2041Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2041 | 2041Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2041 | 2041Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2041 | 2041Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2041 | 2041Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2041 | 2041Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2041 | 2041Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2041 | 2041Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2041 | 2041Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2041 | 2041Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2041 | 2041Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2041 | 2041Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2041 | 2041Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2041 | 2041Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2041 | 2041Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2041 | 2041Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2041 | 2041Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2041 | 2041Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2041 | 2041Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2041 | 2041Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2041 | 2041Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2041 | 2041Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2041 | 2041Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2041 | 2041Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2041 | 2041Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2041 | 2041Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2041 | 2041Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2041 | 2041Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2041 | 2041Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2041 | 2041Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2041 | 2041Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2041 | 2041Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2041 | 2041Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2041 | 2041Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2041 | 2041Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2041 | 2041Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2041 | 2041Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2041 | 2041Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2041 | 2041Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2041 | 2041Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2041 | 2041Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2041 | 2041Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2041 | 2041Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2041 | 2041Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2041 | 2041Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2041 | 2041Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2041 | 2041Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2041 | 2041Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2041 | 2041Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2041 | 2041Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2041 | 2041Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2041 | 2041Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2041 | 2041Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2041 | 2041Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2041 | 2041Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2041 | 2041Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2041 | 2041Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2041 | 2041Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2041 | 2041Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2041 | 2041Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2041 | 2041Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2041 | 2041Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2041 | 2041Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2041 | 2041Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2041 | 2041Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2041 | 2041Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2041 | 2041Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2041 | 2041Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2041 | 2041Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2041 | 2041Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2041 | 2041Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2041 | 2041Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2041 | 2041Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2041 | 2041Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2041 | 2041Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2041 | 2041Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2041 | 2041Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2041 | 2041Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2041 | 2041Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2041 | 2041Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2041 | 2041Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2041 | 2041Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2041 | 2041Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2041 | 2041Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2041 | 2041Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2041 | 2041Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2041 | 2041Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2041 | 2041Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2041 | 2041Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2041 | 2041Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2041 | 2041Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2041 | 2041Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2041 | 2041Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2041 | 2041Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2041 | 2041Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2041 | 2041Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2041 | 2041Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2041 | 2041Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2041 | 2041Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2041 | 2041Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2041 | 2041Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2041 | 2041Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2041 | 2041Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2041 | 2041Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2041 | 2041Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2041 | 2041Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2041 | 2041Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2041 | 2041Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2041 | 2041Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2041 | 2041Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2041 | 2041Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2041 | 2041Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2041 | 2041Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2041 | 2041Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2041 | 2041Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2041 | 2041Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2041 | 2041Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2041 | 2041Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2041 | 2041Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2041 | 2041Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2041 | 2041Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2041 | 2041Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2041 | 2041Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2041 | 2041Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2041 | 2041Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2041 | 2041Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2041 | 2041Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2041 | 2041Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2041 | 2041Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2041 | 2041Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2041 | 2041Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2041 | 2041Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2041 | 2041Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2041 | 2041Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2041 | 2041Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2041 | 2041Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2041 | 2041Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2041 | 2041Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2041 | 2041Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2041 | 2041Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2041 | 2041Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2041 | 2041Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2041 | 2041Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2041 | 2041Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2041 | 2041Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2041 | 2041Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2041 | 2041Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2041 | 2041Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2041 | 2041Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2041 | 2041Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2041 | 2041Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2041 | 2041Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2041 | 2041Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2041 | 2041Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2041 | 2041Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2041 | 2041Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2041 | 2041Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2041 | 2041Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2041 | 2041Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2041 | 2041Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2041 | 2041Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2041 | 2041Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2041 | 2041Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2041 | 2041Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2041 | 2041Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2041 | 2041Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2041 | 2041Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2041 | 2041Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2041 | 2041Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2041 | 2041Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2041 | 2041Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2041 | 2041Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2041 | 2041Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2041 | 2041Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2041 | 2041Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2041 | 2041Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2041 | 2041Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2041 | 2041Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2041 | 2041Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2041 | 2041Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2041 | 2041Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2041 | 2041Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2041 | 2041Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2041 | 2041Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2041 | 2041Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2041 | 2041Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2041 | 2041Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |

**Construction Prior to 2019**

**Approach:** Construction equipment used prior to the year 2021 would be equipped with engines meeting CARB requirements for a large fleet at the time of construction. In-Use Off-Road Diesel Fleet Regulation fleet targets for NOx are used to calculate NOx emissions. Source: Table 3 of the ARB In-Use Off-Road Diesel Fleet Regulation (http://www.arb.ca.gov/msprog/ordiesel/documents/finalregorder-dec2011.pdf).

| Emission Factors by Year [1, 2] | | | | | | |
|---|---|---|---|---|---|---|
| Year+Range | Year | Engine Size (hp) | | Range | NOx EFs (lbs/bhp-hr) | NOx EFs (g/bhp-hr) |
| | | Min | Max | | | |
| 20141 | 2014 | 0 | 24 | 1 | 0.0128 | 5.8 |
| 20142 | 2014 | 25 | 49 | 2 | 0.0128 | 5.8 |
| 20143 | 2014 | 50 | 74 | 3 | 0.0143 | 6.5 |
| 20144 | 2014 | 75 | 99 | 4 | 0.0157 | 7.1 |
| 20145 | 2014 | 100 | 174 | 5 | 0.0141 | 6.4 |
| 20146 | 2014 | 175 | 299 | 6 | 0.0137 | 6.2 |
| 20147 | 2014 | 300 | 599 | 7 | 0.0130 | 5.9 |
| 20151 | 2015 | 0 | 24 | 1 | 0.0123 | 5.6 |
| 20152 | 2015 | 25 | 49 | 2 | 0.0123 | 5.6 |
| 20153 | 2015 | 50 | 74 | 3 | 0.0137 | 6.2 |
| 20154 | 2015 | 75 | 99 | 4 | 0.0148 | 6.7 |
| 20155 | 2015 | 100 | 174 | 5 | 0.0132 | 6.0 |
| 20156 | 2015 | 175 | 299 | 6 | 0.0128 | 5.8 |
| 20157 | 2015 | 300 | 599 | 7 | 0.0121 | 5.5 |
| 20161 | 2016 | 0 | 24 | 1 | 0.0117 | 5.3 |
| 20162 | 2016 | 25 | 49 | 2 | 0.0117 | 5.3 |
| 20163 | 2016 | 50 | 74 | 3 | 0.0128 | 5.8 |
| 20164 | 2016 | 75 | 99 | 4 | 0.0137 | 6.2 |
| 20165 | 2016 | 100 | 174 | 5 | 0.0121 | 5.5 |
| 20166 | 2016 | 175 | 299 | 6 | 0.0117 | 5.3 |
| 20167 | 2016 | 300 | 599 | 7 | 0.0112 | 5.1 |
| 20171 | 2017 | 0 | 24 | 1 | 0.0110 | 5.0 |
| 20172 | 2017 | 25 | 49 | 2 | 0.0110 | 5.0 |
| 20173 | 2017 | 50 | 74 | 3 | 0.0119 | 5.4 |
| 20174 | 2017 | 75 | 99 | 4 | 0.0121 | 5.5 |
| 20175 | 2017 | 100 | 174 | 5 | 0.0108 | 4.9 |
| 20176 | 2017 | 175 | 299 | 6 | 0.0104 | 4.7 |
| 20177 | 2017 | 300 | 599 | 7 | 0.0099 | 4.5 |
| 20181 | 2018 | 0 | 24 | 1 | 0.0104 | 4.7 |
| 20182 | 2018 | 25 | 49 | 2 | 0.0104 | 4.7 |
| 20183 | 2018 | 50 | 74 | 3 | 0.0110 | 5.0 |
| 20184 | 2018 | 75 | 99 | 4 | 0.0106 | 4.8 |
| 20185 | 2018 | 100 | 174 | 5 | 0.0095 | 4.3 |
| 20186 | 2018 | 175 | 299 | 6 | 0.0090 | 4.1 |
| 20187 | 2018 | 300 | 599 | 7 | 0.0088 | 4.0 |
| 20191 | 2019 | 0 | 24 | 1 | 0.0097 | 4.4 |
| 20192 | 2019 | 25 | 49 | 2 | 0.0097 | 4.4 |
| 20193 | 2019 | 50 | 74 | 3 | 0.0101 | 4.6 |
| 20194 | 2019 | 75 | 99 | 4 | 0.0090 | 4.1 |
| 20195 | 2019 | 100 | 174 | 5 | 0.0082 | 3.7 |
| 20196 | 2019 | 175 | 299 | 6 | 0.0077 | 3.5 |
| 20197 | 2019 | 300 | 599 | 7 | 0.0075 | 3.4 |

**Construction Prior to 2019**

| | | | | | | |
|---|---|---|---|---|---|---|
| 20201 | 2020 | 0 | 24 | 1 | 0.0090 | 4.1 |
| 20202 | 2020 | 25 | 49 | 2 | 0.0090 | 4.1 |
| 20203 | 2020 | 50 | 74 | 3 | 0.0093 | 4.2 |
| 20204 | 2020 | 75 | 99 | 4 | 0.0075 | 3.4 |
| 20205 | 2020 | 100 | 174 | 5 | 0.0068 | 3.1 |
| 20206 | 2020 | 175 | 299 | 6 | 0.0064 | 2.9 |
| 20207 | 2020 | 300 | 599 | 7 | 0.0062 | 2.8 |
| 20211 | 2021 | 0 | 24 | 1 | 0.0084 | 3.8 |
| 20212 | 2021 | 25 | 49 | 2 | 0.0084 | 3.8 |
| 20213 | 2021 | 50 | 74 | 3 | 0.0084 | 3.8 |
| 20214 | 2021 | 75 | 99 | 4 | 0.0060 | 2.7 |
| 20215 | 2021 | 100 | 174 | 5 | 0.0055 | 2.5 |
| 20216 | 2021 | 175 | 299 | 6 | 0.0051 | 2.3 |
| 20217 | 2021 | 300 | 599 | 7 | 0.0049 | 2.2 |
| 20221 | 2022 | 0 | 24 | 1 | 0.0077 | 3.5 |
| 20222 | 2022 | 25 | 49 | 2 | 0.0077 | 3.5 |
| 20223 | 2022 | 50 | 74 | 3 | 0.0075 | 3.4 |
| 20224 | 2022 | 75 | 99 | 4 | 0.0044 | 2.0 |
| 20225 | 2022 | 100 | 174 | 5 | 0.0042 | 1.9 |
| 20226 | 2022 | 175 | 299 | 6 | 0.0037 | 1.7 |
| 20227 | 2022 | 300 | 599 | 7 | 0.0037 | 1.7 |
| 20231 | 2023 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20232 | 2023 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20233 | 2023 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20234 | 2023 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20235 | 2023 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20236 | 2023 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20237 | 2023 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20241 | 2024 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20242 | 2024 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20243 | 2024 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20244 | 2024 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20245 | 2024 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20246 | 2024 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20247 | 2024 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20251 | 2025 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20252 | 2025 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20253 | 2025 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20254 | 2025 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20255 | 2025 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20256 | 2025 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20257 | 2025 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20261 | 2026 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20262 | 2026 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20263 | 2026 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20264 | 2026 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20265 | 2026 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20266 | 2026 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20267 | 2026 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20271 | 2027 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20272 | 2027 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20273 | 2027 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20274 | 2027 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20275 | 2027 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20276 | 2027 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20277 | 2027 | 300 | 599 | 7 | 0.0033 | 1.5 |

**Construction Prior to 2019**

| | | | | | | |
|---|---|---|---|---|---|---|
| 20281 | 2028 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20282 | 2028 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20283 | 2028 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20284 | 2028 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20285 | 2028 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20286 | 2028 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20287 | 2028 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20291 | 2029 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20292 | 2029 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20293 | 2029 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20294 | 2029 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20295 | 2029 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20296 | 2029 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20297 | 2029 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20301 | 2030 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20302 | 2030 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20303 | 2030 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20304 | 2030 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20305 | 2030 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20306 | 2030 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20307 | 2030 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20311 | 2031 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20312 | 2031 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20313 | 2031 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20314 | 2031 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20315 | 2031 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20316 | 2031 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20317 | 2031 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20321 | 2032 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20322 | 2032 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20323 | 2032 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20324 | 2032 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20325 | 2032 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20326 | 2032 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20327 | 2032 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20331 | 2033 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20332 | 2033 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20333 | 2033 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20334 | 2033 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20335 | 2033 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20336 | 2033 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20337 | 2033 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20341 | 2034 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20342 | 2034 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20343 | 2034 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20344 | 2034 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20345 | 2034 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20346 | 2034 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20347 | 2034 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20351 | 2035 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20352 | 2035 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20353 | 2035 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20354 | 2035 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20355 | 2035 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20356 | 2035 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20357 | 2035 | 300 | 599 | 7 | 0.0033 | 1.5 |

**Construction Prior to 2019**

| | | | | | | |
|---|---|---|---|---|---|---|
| 20361 | 2036 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20362 | 2036 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20363 | 2036 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20364 | 2036 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20365 | 2036 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20366 | 2036 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20367 | 2036 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20371 | 2037 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20372 | 2037 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20373 | 2037 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20374 | 2037 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20375 | 2037 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20376 | 2037 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20377 | 2037 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20381 | 2038 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20382 | 2038 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20383 | 2038 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20384 | 2038 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20385 | 2038 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20386 | 2038 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20387 | 2038 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20391 | 2039 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20392 | 2039 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20393 | 2039 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20394 | 2039 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20395 | 2039 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20396 | 2039 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20397 | 2039 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20401 | 2040 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20402 | 2040 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20403 | 2040 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20404 | 2040 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20405 | 2040 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20406 | 2040 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20407 | 2040 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20411 | 2041 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20412 | 2041 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20413 | 2041 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20414 | 2041 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20415 | 2041 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20416 | 2041 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20417 | 2041 | 300 | 599 | 7 | 0.0033 | 1.5 |

Notes:

[1] ARB In-Use Off-Road Diesel Reg NOx targets do not include equipment with horsepower ranging from 0-24 hp. Emissions factors are assumed to be the same as equipment from 25-49 hp.

[2] ARB In-Use Off-Road Diesel Reg NOx targets end at year 2023. Years 2024-2041 are conservatively assumed to have the same emission factors as year 2023.

**Construction Beginning with the Year 2019 and Operation**

**Approach:** Off-road diesel operation equipment purchased as part of the proposed project and off-road diesel construction equipment beginning with the year 2021 would be equipped with engines meeting Tier 4 Final emission standards. Source: Table 3.5 of CalEEMod Appendix D (http://www.aqmd.gov/docs/default-source/caleemod/caleemod-appendixd.pdf?sfvrsn=2).

| Emission Factors by Year [1] | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Engine Size (hp) [1] | | | Tier 4f (g/bhp-hr) | | | | | Tier 4f (lbs/bhp-hr) | | | | |
| Min | Max | Range | CO | VOC | $NO_x$ (final) | $PM_{10}$ | $PM_{2.5}$ | CO | VOC | $NO_x$ (final) | $PM_{10}$ | $PM_{2.5}$ |
| 0 | 24 | 1 | 4.1 | 0.12 | 2.75 | 0.008 | 0.008 | 0.009039 | 0.000265 | 0.006063 | 1.764E-05 | 1.7637E-05 |
| 25 | 49 | 2 | 4.1 | 0.12 | 2.75 | 0.008 | 0.008 | 0.009039 | 0.000265 | 0.006063 | 1.764E-05 | 1.7637E-05 |
| 50 | 74 | 3 | 3.7 | 0.12 | 2.74 | 0.008 | 0.008 | 0.008157 | 0.000265 | 0.006041 | 1.764E-05 | 1.7637E-05 |
| 75 | 119 | 4 | 3.7 | 0.06 | 0.26 | 0.008 | 0.008 | 0.008157 | 0.000132 | 0.000573 | 1.764E-05 | 1.7637E-05 |
| 120 | 174 | 5 | 3.7 | 0.06 | 0.26 | 0.008 | 0.008 | 0.008157 | 0.000132 | 0.000573 | 1.764E-05 | 1.7637E-05 |
| 175 | 299 | 6 | 2.2 | 0.06 | 0.26 | 0.008 | 0.008 | 0.00485 | 0.000132 | 0.000573 | 1.764E-05 | 1.7637E-05 |
| 300 | 599 | 7 | 2.2 | 0.06 | 0.26 | 0.008 | 0.008 | 0.00485 | 0.000132 | 0.000573 | 1.764E-05 | 1.7637E-05 |

[1] Tier EFs not available for equipment with less than 25 hp; EFs assumed equal to EFs for equipment with 25-49 hp.

453.592 g/lb

## EMFAC2014 Onroad Vehicle Emission Factors

### EMFAC2014: Passenger Cars (LDA), Light-Duty Trucks (LDT2), Light-Heavy-Duty Trucks (LHD2),

Exhaust emission factors from EMFAC2014 for Los Angeles (SC). A speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions. Version: EMFAC2014 Version 1.0.7. Run date: 2015/9/22 13:48; Season: Annual; Area: Los Angeles (SC); EMFAC2011 Vehicle Categories; Fuel: Gasoline.

### EMFAC2014: Medium-Heavy-Duty Trucks (MHDT), Heavy-Heavy-Duty Trucks (HHDT)

Exhaust emission factors from EMFAC2014 for Los Angeles (SC); EMFAC2011 Vehicle Categories; Region: Los Angeles (SC); Season: Annual Average; Fuel: Diesel; Speed: 40mph (combined speeds for PM fugitive and SOx). MHDT is average of T6 instate construction heavy, T6 instate construction small, T6 instate heavy, T6 instate small, and T6 Public. HHDT is T7 SWCV (Solid Waste Collection Truck). EMFAC does not predict methane emissions from MHDT and HHDT.

Running Exhaust Emissions **(grams/mile)**

| Year | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$-Tire Wear | $PM_{10}$-Break Wear | PM10 Fugitive | $PM_{2.5}$ | $PM^{2.5}$-Tire Wear | $PM^{2.5}$-Break Wear (Fugitive) | PM2.5 Fugitive | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi |
| 2017 | Heavy-Heavy Duty Trucks | HHDT | 0.01344 | 14.4334 | 0.0015 | 0.037 | 0.0121 | 0.036 | 0.06174 | 0.09774 | 0.01154 | 0.009 | 0.02646 | 0.03546 | 3862.76 | 6.9451E-05 |
| 2017 | Medium-Heavy Duty Trucks | MHDT | 0.42205 | 3.83443 | 0.1219 | 0.011 | 0.0668 | 0.012 | 0.13034 | 0.14234 | 0.06393786 | 0.003 | 0.05586 | 0.05886 | 1151.1 | 0.00566193 |
| 2017 | Light-Heavy Duty Trucks | LHD2 | 1.0114 | 0.27602 | 0.03581 | 0.008 | 0.001 | 0.008 | 0.08918 | 0.09718 | 0.00089 | 0.002 | 0.03822 | 0.04022 | 760.854 | 0.014054 |
| 2017 | Light-Duty Trucks | LDT2 | 1.19622 | 0.12755 | 0.02472 | 0.004 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001385 | 0.002 | 0.01575 | 0.01775 | 349.742 | 0.008557 |
| 2017 | Passenger Cars | LDA | 0.912 | 0.07586 | 0.01935 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00140696 | 0.002 | 0.01575 | 0.01775 | 261.084 | 0.00649135 |
| 2017 | Light-Light Duty Trucks | LDT1 | 2.42105 | 0.22155 | 0.06017 | 0.003 | 0.0033 | 0.008 | 0.03675 | 0.04475 | 0.003006 | 0.002 | 0.01575 | 0.01775 | 304.699 | 0.019015 |
| 2018 | Heavy-Heavy Duty Trucks | HHDT | 0.01346 | 14.344 | 0.00156 | 0.037 | 0.012 | 0.036 | 0.06174 | 0.09774 | 0.011453 | 0.009 | 0.02646 | 0.03546 | 3860.97 | 7.2273E-05 |
| 2018 | Medium-Heavy Duty Trucks | MHDT | 0.3551 | 3.32316 | 0.10172 | 0.011 | 0.0525 | 0.012 | 0.13034 | 0.14234 | 0.05026556 | 0.003 | 0.05586 | 0.05886 | 1150.37 | 0.0047247 |
| 2018 | Light-Heavy Duty Trucks | LHD2 | 0.84828 | 0.24231 | 0.03001 | 0.008 | 0.0009 | 0.008 | 0.8918 | 0.8998 | 0.000847 | 0.002 | 0.03822 | 0.04022 | 755.629 | 0.011787 |
| 2018 | Light-Duty Trucks | LDT2 | 1.05247 | 0.109 | 0.02017 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001368 | 0.002 | 0.01575 | 0.01775 | 340.21 | 0.007483 |
| 2018 | Passenger Cars | LDA | 0.81445 | 0.0667 | 0.01557 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001395 | 0.002 | 0.01575 | 0.01775 | 254.152 | 0.005729 |
| 2018 | Light-Light Duty Trucks | LDT1 | 2.10353 | 0.19186 | 0.04523 | 0.003 | 0.003 | 0.008 | 0.03675 | 0.04475 | 0.002745 | 0.002 | 0.01575 | 0.01775 | 297.888 | 0.016643 |
| 2019 | Heavy-Heavy Duty Trucks | HHDT | 0.01343 | 14.233 | 0.00162 | 0.037 | 0.0118 | 0.036 | 0.06174 | 0.09774 | 0.011294 | 0.009 | 0.02646 | 0.03546 | 3858.24 | 7.5383E-05 |
| 2019 | Medium-Heavy Duty Trucks | MHDT | 0.31722 | 2.92708 | 0.0897 | 0.011 | 0.0443 | 0.012 | 0.13034 | 0.14234 | 0.0424034 | 0.003 | 0.05586 | 0.05886 | 1147.58 | 0.0041662 |
| 2019 | Light-Heavy Duty Trucks | LHD2 | 0.70752 | 0.21195 | 0.02494 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000812 | 0.002 | 0.03822 | 0.04022 | 750.264 | 0.009814 |
| 2019 | Light-Duty Trucks | LDT2 | 0.93612 | 0.09382 | 0.01674 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001365 | 0.002 | 0.01575 | 0.01775 | 330.706 | 0.006605 |
| 2019 | Passenger Cars | LDA | 0.73717 | 0.0593 | 0.01276 | 0.002 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001392 | 0.002 | 0.01575 | 0.01775 | 247.144 | 0.005114 |
| 2019 | Light-Light Duty Trucks | LDT1 | 1.89288 | 0.17124 | 0.03806 | 0.003 | 0.0028 | 0.008 | 0.03675 | 0.04475 | 0.002585 | 0.002 | 0.01575 | 0.01775 | 291.139 | 0.014912 |
| 2020 | Heavy-Heavy Duty Trucks | HHDT | 0.01341 | 14.1218 | 0.00169 | 0.037 | 0.0116 | 0.036 | 0.06174 | 0.09774 | 0.01113205 | 0.009 | 0.02646 | 0.03546 | 3855.49 | 7.85E-05 |
| 2020 | Medium-Heavy Duty Trucks | MHDT | 0.24455 | 2.36307 | 0.0676 | 0.011 | 0.0304 | 0.012 | 0.13034 | 0.14234 | 0.02908611 | 0.003 | 0.05586 | 0.05886 | 1145.26 | 0.00313992 |
| 2020 | Light-Heavy Duty Trucks | LHD2 | 0.58838 | 0.18558 | 0.02062 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00078462 | 0.002 | 0.03822 | 0.04022 | 745.191 | 0.0082257 |
| 2020 | Light-Duty Trucks | LDT2 | 0.84746 | 0.08223 | 0.01453 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00135657 | 0.002 | 0.01575 | 0.01775 | 321.254 | 0.00584818 |
| 2020 | Passenger Cars | LDA | 0.68262 | 0.05355 | 0.01144 | 0.002 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00137783 | 0.002 | 0.01575 | 0.01775 | 240.305 | 0.00459183 |
| 2020 | Light-Light Duty Trucks | LDT1 | 1.71724 | 0.15401 | 0.03314 | 0.003 | 0.0027 | 0.008 | 0.03675 | 0.04475 | 0.00244149 | 0.002 | 0.01575 | 0.01775 | 284.254 | 0.01325812 |
| 2021 | Heavy-Heavy Duty Trucks | HHDT | 0.01334 | 13.9855 | 0.00177 | 0.037 | 0.0114 | 0.036 | 0.06174 | 0.09774 | 0.01089 | 0.009 | 0.02646 | 0.03546 | 3851.67 | 8.2004E-05 |
| 2021 | Medium-Heavy Duty Trucks | MHDT | 0.17063 | 1.82876 | 0.04195 | 0.011 | 0.0098 | 0.012 | 0.13034 | 0.14234 | 0.00941721 | 0.003 | 0.05586 | 0.05886 | 1143.77 | 0.00194851 |
| 2021 | Light-Heavy Duty Trucks | LHD2 | 0.49046 | 0.16183 | 0.01696 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.000766 | 0.002 | 0.03822 | 0.04022 | 740.378 | 0.006854 |
| 2021 | Light-Duty Trucks | LDT2 | 0.78281 | 0.07332 | 0.01317 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00134 | 0.002 | 0.01575 | 0.01775 | 310.702 | 0.005305 |
| 2021 | Passenger Cars | LDA | 0.63969 | 0.04882 | 0.01036 | 0.002 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00135 | 0.002 | 0.01575 | 0.01775 | 233.344 | 0.004164 |
| 2021 | Light-Light Duty Trucks | LDT1 | 1.5685 | 0.13923 | 0.02978 | 0.003 | 0.0025 | 0.008 | 0.03675 | 0.04475 | 0.0023 | 0.002 | 0.01575 | 0.01775 | 276.371 | 0.011933 |
| 2022 | Heavy-Heavy Duty Trucks | HHDT | 0.01338 | 13.9094 | 0.00182 | 0.037 | 0.0113 | 0.036 | 0.06174 | 0.09774 | 0.01081472 | 0.009 | 0.02646 | 0.03546 | 3850.18 | 8.47E-05 |
| 2022 | Medium-Heavy Duty Trucks | MHDT | 0.16908 | 1.63283 | 0.04045 | 0.011 | 0.0088 | 0.012 | 0.13034 | 0.14234 | 0.00839874 | 0.003 | 0.05586 | 0.05886 | 1139.91 | 0.00187895 |
| 2022 | Light-Heavy Duty Trucks | LHD2 | 0.41304 | 0.14005 | 0.01393 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.00075583 | 0.002 | 0.03822 | 0.04022 | 735.817 | 0.0056273 |
| 2022 | Light-Duty Trucks | LDT2 | 0.73304 | 0.06616 | 0.01205 | 0.003 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00133234 | 0.002 | 0.01575 | 0.01775 | 300.104 | 0.00485774 |
| 2022 | Passenger Cars | LDA | 0.60357 | 0.04477 | 0.00943 | 0.002 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00133488 | 0.002 | 0.01575 | 0.01775 | 226.476 | 0.00379878 |
| 2022 | Light-Light Duty Trucks | LDT1 | 1.43244 | 0.12581 | 0.02668 | 0.003 | 0.0024 | 0.008 | 0.03675 | 0.04475 | 0.00217461 | 0.002 | 0.01575 | 0.01775 | 268.257 | 0.01071889 |
| 2023 | Heavy-Heavy Duty Trucks | HHDT | 0.01336 | 13.8058 | 0.00189 | 0.037 | 0.0111 | 0.036 | 0.06174 | 0.09774 | 0.01064554 | 0.009 | 0.02646 | 0.03546 | 3847.44 | 8.78E-05 |
| 2023 | Medium-Heavy Duty Trucks | MHDT | 0.15237 | 0.98303 | 0.03059 | 0.011 | 0.005 | 0.012 | 0.13034 | 0.14234 | 0.00482875 | 0.003 | 0.05586 | 0.05886 | 1133.05 | 0.00142064 |
| 2023 | Light-Heavy Duty Trucks | LHD2 | 0.35403 | 0.12219 | 0.01173 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.00075275 | 0.002 | 0.03822 | 0.04022 | 731.482 | 0.00474003 |
| 2023 | Light-Duty Trucks | LDT2 | 0.69 | 0.05994 | 0.01101 | 0.003 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00132973 | 0.002 | 0.01575 | 0.01775 | 289.439 | 0.0044452 |
| 2023 | Passenger Cars | LDA | 0.56956 | 0.04128 | 0.00861 | 0.002 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.0013261 | 0.002 | 0.01575 | 0.01775 | 219.736 | 0.00347241 |
| 2023 | Light-Light Duty Trucks | LDT1 | 1.29924 | 0.11327 | 0.0237 | 0.003 | 0.0022 | 0.008 | 0.03675 | 0.04475 | 0.00205858 | 0.002 | 0.01575 | 0.01775 | 259.856 | 0.00955547 |
| 2024 | Heavy-Heavy Duty Trucks | HHDT | 0.01335 | 13.7107 | 0.00195 | 0.037 | 0.011 | 0.036 | 0.06174 | 0.09774 | 0.01048309 | 0.009 | 0.02646 | 0.03546 | 3844.86 | 9.07E-05 |
| 2024 | Medium-Heavy Duty Trucks | MHDT | 0.15321 | 0.91444 | 0.03056 | 0.011 | 0.0048 | 0.012 | 0.13034 | 0.14234 | 0.00457932 | 0.003 | 0.05586 | 0.05886 | 1129.75 | 0.00141939 |
| 2024 | Light-Heavy Duty Trucks | LHD2 | 0.30904 | 0.10705 | 0.01006 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.00075553 | 0.002 | 0.03822 | 0.04022 | 727.445 | 0.00406443 |
| 2024 | Light-Duty Trucks | LDT2 | 0.65619 | 0.05461 | 0.0101 | 0.003 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00132986 | 0.002 | 0.01575 | 0.01775 | 278.897 | 0.00408067 |
| 2024 | Passenger Cars | LDA | 0.53629 | 0.03812 | 0.00785 | 0.002 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00132098 | 0.002 | 0.01575 | 0.01775 | 213.048 | 0.00317105 |

## Chiquita Canyon Landfill EIR

### EMFAC2014 Onroad Vehicle Emission Factors

**EMFAC2014: Passenger Cars (LDA), Light-Duty Trucks (LDT2), Light-Heavy-Duty Trucks (LHD2),**

Exhaust emission factors from EMFAC2014 for Los Angeles (SC). A speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions. Version: EMFAC2014 Version 1.0.7. Run date: 2015/9/22 13:48; Season: Annual; Area: Los Angeles (SC); EMFAC2011 Vehicle Categories; Fuel: Gasoline.

**EMFAC2014: Medium-Heavy-Duty Trucks (MHDT), Heavy-Heavy-Duty Trucks (HHDT)**

Exhaust emission factors from EMFAC2014 for Los Angeles (SC); EMFAC2011 Vehicle Categories; Region: Los Angeles (SC); Season: Annual Average; Fuel: Diesel; Speed: 40mph (combined speeds for PM fugitive and SOx). MHDT is average of T6 instate construction heavy, T6 instate construction small, T6 instate heavy, T6 instate small, and T6 Public. HHDT is T7 SWCV (Solid Waste Collection Truck). EMFAC does not predict methane emissions from MHDT and HHDT.

Running Exhaust Emissions **(grams/mile)**

| Year | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$-Tire Wear | $PM_{10}$-Break Wear | PM10 Fugitive | $PM_{2.5}$ | $PM^{2.5}$-Tire Wear | $PM^{2.5}$-Break Wear (Fugitive) | PM2.5 Fugitive | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi |
| 2024 | Light-Light Duty Trucks | LDT1 | 1.19429 | 0.10281 | 0.02134 | 0.003 | 0.0021 | 0.008 | 0.03675 | 0.04475 | 0.0019606 | 0.002 | 0.01575 | 0.01775 | 251.377 | 0.00861428 |
| 2025 | Heavy-Heavy Duty Trucks | HHDT | 0.01335 | 13.6295 | 0.00201 | 0.037 | 0.0108 | 0.036 | 0.06174 | 0.09774 | 0.010338 | 0.009 | 0.02646 | 0.03546 | 3842.59 | 9.3252E-05 |
| 2025 | Medium-Heavy Duty Trucks | MHDT | 0.1537 | 0.85029 | 0.03048 | 0.011 | 0.0045 | 0.012 | 0.13034 | 0.14234 | 0.00435098 | 0.003 | 0.05586 | 0.05886 | 1126.35 | 0.0014158 |
| 2025 | Light-Heavy Duty Trucks | LHD2 | 0.27597 | 0.09455 | 0.00885 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.000763 | 0.002 | 0.03822 | 0.04022 | 723.696 | 0.003576 |
| 2025 | Light-Duty Trucks | LDT2 | 0.62171 | 0.0502 | 0.00933 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001333 | 0.002 | 0.01575 | 0.01775 | 268.554 | 0.003769 |
| 2025 | Passenger Cars | LDA | 0.50636 | 0.0356 | 0.00727 | 0.002 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.001322 | 0.002 | 0.01575 | 0.01775 | 206.357 | 0.002937 |
| 2025 | Light-Light Duty Trucks | LDT1 | 1.09781 | 0.0936 | 0.01927 | 0.002 | 0.002 | 0.008 | 0.03675 | 0.04475 | 0.001876 | 0.002 | 0.01575 | 0.01775 | 242.904 | 0.007788 |
| 2026 | Heavy-Heavy Duty Trucks | HHDT | 0.01333 | 13.5495 | 0.00206 | 0.037 | 0.0106 | 0.036 | 0.06174 | 0.09774 | 0.01017083 | 0.009 | 0.02646 | 0.03546 | 3840.08 | 9.57E-05 |
| 2026 | Medium-Heavy Duty Trucks | MHDT | 0.15381 | 0.78943 | 0.03034 | 0.011 | 0.0043 | 0.012 | 0.13034 | 0.14234 | 0.0041344 | 0.003 | 0.05586 | 0.05886 | 1123.01 | 0.00140934 |
| 2026 | Light-Heavy Duty Trucks | LHD2 | 0.24185 | 0.08297 | 0.00752 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.0007696 | 0.002 | 0.03822 | 0.04022 | 720.271 | 0.0030388 |
| 2026 | Light-Duty Trucks | LDT2 | 0.59317 | 0.04654 | 0.00867 | 0.003 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.0013117 | 0.002 | 0.01575 | 0.01775 | 259.554 | 0.00350286 |
| 2026 | Passenger Cars | LDA | 0.4816 | 0.03342 | 0.00677 | 0.002 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00129621 | 0.002 | 0.01575 | 0.01775 | 200.565 | 0.00273604 |
| 2026 | Light-Light Duty Trucks | LDT1 | 1.01353 | 0.08589 | 0.01748 | 0.002 | 0.002 | 0.008 | 0.03675 | 0.04475 | 0.00179403 | 0.002 | 0.01575 | 0.01775 | 235.43 | 0.00706418 |
| 2027 | Heavy-Heavy Duty Trucks | HHDT | 0.01334 | 13.4989 | 0.0021 | 0.037 | 0.0105 | 0.036 | 0.06174 | 0.09774 | 0.01005577 | 0.009 | 0.02646 | 0.03546 | 3838.37 | 9.75E-05 |
| 2027 | Medium-Heavy Duty Trucks | MHDT | 0.15347 | 0.73069 | 0.03013 | 0.011 | 0.0041 | 0.012 | 0.13034 | 0.14234 | 0.00393641 | 0.003 | 0.05586 | 0.05886 | 1119.55 | 0.00139965 |
| 2027 | Light-Heavy Duty Trucks | LHD2 | 0.21447 | 0.07317 | 0.00647 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.00077837 | 0.002 | 0.03822 | 0.04022 | 717.166 | 0.00261362 |
| 2027 | Light-Duty Trucks | LDT2 | 0.56876 | 0.04336 | 0.00809 | 0.003 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00126041 | 0.002 | 0.01575 | 0.01775 | 251.594 | 0.00326954 |
| 2027 | Passenger Cars | LDA | 0.45957 | 0.03143 | 0.00631 | 0.002 | 0.0013 | 0.008 | 0.03675 | 0.04475 | 0.00123729 | 0.002 | 0.01575 | 0.01775 | 195.408 | 0.00255148 |
| 2027 | Light-Light Duty Trucks | LDT1 | 0.93521 | 0.07871 | 0.01582 | 0.002 | 0.0018 | 0.008 | 0.03675 | 0.04475 | 0.00169056 | 0.002 | 0.01575 | 0.01775 | 228.641 | 0.00639405 |
| 2028 | Heavy-Heavy Duty Trucks | HHDT | 0.01332 | 13.4535 | 0.00213 | 0.037 | 0.0104 | 0.036 | 0.06174 | 0.09774 | 0.009924 | 0.009 | 0.02646 | 0.03546 | 3836.49 | 9.8942E-05 |
| 2028 | Medium-Heavy Duty Trucks | MHDT | 0.15336 | 0.68358 | 0.02998 | 0.011 | 0.0039 | 0.012 | 0.13034 | 0.14234 | 0.00377146 | 0.003 | 0.05586 | 0.05886 | 1116.73 | 0.00139267 |
| 2028 | Light-Heavy Duty Trucks | LHD2 | 0.19476 | 0.06527 | 0.00568 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000789 | 0.002 | 0.03822 | 0.04022 | 714.404 | 0.002296 |
| 2028 | Light-Duty Trucks | LDT2 | 0.54718 | 0.04057 | 0.00758 | 0.002 | 0.0013 | 0.008 | 0.03675 | 0.04475 | 0.001183 | 0.002 | 0.01575 | 0.01775 | 244.543 | 0.003062 |
| 2028 | Passenger Cars | LDA | 0.43956 | 0.02963 | 0.0059 | 0.002 | 0.0013 | 0.008 | 0.03675 | 0.04475 | 0.001151 | 0.002 | 0.01575 | 0.01775 | 190.82 | 0.002382 |
| 2028 | Light-Light Duty Trucks | LDT1 | 0.86708 | 0.07212 | 0.01446 | 0.002 | 0.0017 | 0.008 | 0.03675 | 0.04475 | 0.001572 | 0.002 | 0.01575 | 0.01775 | 222.525 | 0.005843 |
| 2029 | Heavy-Heavy Duty Trucks | HHDT | 0.01322 | 13.3719 | 0.00217 | 0.037 | 0.0101 | 0.036 | 0.06174 | 0.09774 | 0.009658 | 0.009 | 0.02646 | 0.03546 | 3832.79 | 0.00010062 |
| 2029 | Medium-Heavy Duty Trucks | MHDT | 0.15315 | 0.64246 | 0.02983 | 0.011 | 0.0038 | 0.012 | 0.13034 | 0.14234 | 0.00362446 | 0.003 | 0.05586 | 0.05886 | 1114.19 | 0.00138557 |
| 2029 | Light-Heavy Duty Trucks | LHD2 | 0.17863 | 0.05863 | 0.00507 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000798 | 0.002 | 0.03822 | 0.04022 | 711.954 | 0.002047 |
| 2029 | Light-Duty Trucks | LDT2 | 0.52699 | 0.03804 | 0.0071 | 0.002 | 0.0012 | 0.008 | 0.03675 | 0.04475 | 0.001112 | 0.002 | 0.01575 | 0.01775 | 238.26 | 0.002867 |
| 2029 | Passenger Cars | LDA | 0.42042 | 0.02793 | 0.0055 | 0.002 | 0.0012 | 0.008 | 0.03675 | 0.04475 | 0.001079 | 0.002 | 0.01575 | 0.01775 | 186.727 | 0.002222 |
| 2029 | Light-Light Duty Trucks | LDT1 | 0.79392 | 0.06501 | 0.01298 | 0.002 | 0.0016 | 0.008 | 0.03675 | 0.04475 | 0.001455 | 0.002 | 0.01575 | 0.01775 | 216.92 | 0.005246 |
| 2030 | Heavy-Heavy Duty Trucks | HHDT | 0.01312 | 13.3166 | 0.00219 | 0.037 | 0.0099 | 0.036 | 0.06174 | 0.09774 | 0.00943682 | 0.009 | 0.02646 | 0.03546 | 3829.71 | 0.00010162 |
| 2030 | Medium-Heavy Duty Trucks | MHDT | 0.15277 | 0.60525 | 0.02966 | 0.011 | 0.0036 | 0.012 | 0.13034 | 0.14234 | 0.00348863 | 0.003 | 0.05586 | 0.05886 | 0.02966 | 0.00137747 |
| 2030 | Light-Heavy Duty Trucks | LHD2 | 0.16516 | 0.05297 | 0.00453 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00080661 | 0.002 | 0.03822 | 0.04022 | 709.787 | 0.00183015 |
| 2030 | Light-Duty Trucks | LDT2 | 0.50844 | 0.0358 | 0.00666 | 0.002 | 0.0011 | 0.008 | 0.03675 | 0.04475 | 0.00104725 | 0.002 | 0.01575 | 0.01775 | 232.667 | 0.00269222 |
| 2030 | Passenger Cars | LDA | 0.40307 | 0.0264 | 0.00514 | 0.002 | 0.0011 | 0.008 | 0.03675 | 0.04475 | 0.00101572 | 0.002 | 0.01575 | 0.01775 | 183.088 | 0.0020776 |
| 2030 | Light-Light Duty Trucks | LDT1 | 0.72406 | 0.05777 | 0.01157 | 0.002 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00134256 | 0.002 | 0.01575 | 0.01775 | 211.781 | 0.00467652 |
| 2031 | Heavy-Heavy Duty Trucks | HHDT | 0.01298 | 13.2564 | 0.0022 | 0.037 | 0.0096 | 0.036 | 0.06174 | 0.09774 | 0.00917842 | 0.009 | 0.02646 | 0.03546 | 3826.08 | 0.00010235 |
| 2031 | Medium-Heavy Duty Trucks | MHDT | 0.15233 | 0.5714 | 0.02948 | 0.011 | 0.0035 | 0.012 | 0.13034 | 0.14234 | 0.00336506 | 0.003 | 0.05586 | 0.05886 | 1109.62 | 0.00136924 |
| 2031 | Light-Heavy Duty Trucks | LHD2 | 0.15084 | 0.04784 | 0.00395 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00081346 | 0.002 | 0.03822 | 0.04022 | 707.875 | 0.00159807 |
| 2031 | Light-Duty Trucks | LDT2 | 0.4908 | 0.03377 | 0.00626 | 0.002 | 0.0011 | 0.008 | 0.03675 | 0.04475 | 0.00098687 | 0.002 | 0.01575 | 0.01775 | 227.715 | 0.00253065 |
| 2031 | Passenger Cars | LDA | 0.38702 | 0.02502 | 0.00482 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.00095768 | 0.002 | 0.01575 | 0.01775 | 179.874 | 0.00194615 |
| 2031 | Light-Light Duty Trucks | LDT1 | 0.64935 | 0.04981 | 0.01009 | 0.002 | 0.0013 | 0.008 | 0.03675 | 0.04475 | 0.00122669 | 0.002 | 0.01575 | 0.01775 | 207.012 | 0.00407736 |
| 2032 | Heavy-Heavy Duty Trucks | HHDT | 0.01279 | 13.1789 | 0.00222 | 0.036 | 0.0093 | 0.036 | 0.06174 | 0.09774 | 0.00885904 | 0.009 | 0.02646 | 0.03546 | 3821.48 | 0.00010303 |
| 2032 | Medium-Heavy Duty Trucks | MHDT | 0.15185 | 0.5409 | 0.02931 | 0.011 | 0.0034 | 0.012 | 0.13034 | 0.14234 | 0.00325792 | 0.003 | 0.05586 | 0.05886 | 1107.76 | 0.00136119 |
| 2032 | Light-Heavy Duty Trucks | LHD2 | 0.13842 | 0.04357 | 0.00344 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00081979 | 0.002 | 0.03822 | 0.04022 | 706.189 | 0.00138869 |
| 2032 | Light-Duty Trucks | LDT2 | 0.47411 | 0.03194 | 0.0059 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.00092955 | 0.002 | 0.01575 | 0.01775 | 223.353 | 0.00238276 |

## EMFAC2014 Onroad Vehicle Emission Factors

### EMFAC2014: Passenger Cars (LDA), Light-Duty Trucks (LDT2), Light-Heavy-Duty Trucks (LHD2),

Exhaust emission factors from EMFAC2014 for Los Angeles (SC). A speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions. Version: EMFAC2014 Version 1.0.7. Run date: 2015/9/22 13:48; Season: Annual; Area: Los Angeles (SC); EMFAC2011 Vehicle Categories; Fuel: Gasoline.

### EMFAC2014: Medium-Heavy-Duty Trucks (MHDT), Heavy-Heavy-Duty Trucks (HHDT)

Exhaust emission factors from EMFAC2014 for Los Angeles (SC); EMFAC2011 Vehicle Categories; Region: Los Angeles (SC); Season: Annual Average; Fuel: Diesel; Speed: 40mph (combined speeds for PM fugitive and SOx). MHDT is average of T6 instate construction heavy, T6 instate construction small, T6 instate heavy, T6 instate small, and T6 Public. HHDT is T7 SWCV (Solid Waste Collection Truck). EMFAC does not predict methane emissions from MHDT and HHDT.

Running Exhaust Emissions **(grams/mile)**

| Year | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$-Tire Wear | $PM_{10}$-Break Wear | PM10 Fugitive | $PM_{2.5}$ | $PM^{2.5}$-Tire Wear | $PM^{2.5}$-Break Wear (Fugitive) | PM2.5 Fugitive | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi |
| 2032 | Passenger Cars | LDA | 0.37198 | 0.02377 | 0.00452 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.00090306 | 0.002 | 0.01575 | 0.01775 | 177.044 | 0.0018251 |
| 2032 | Light-Light Duty Trucks | LDT1 | 0.58674 | 0.0431 | 0.00885 | 0.002 | 0.0012 | 0.008 | 0.03675 | 0.04475 | 0.00112507 | 0.002 | 0.01575 | 0.01775 | 202.727 | 0.00357611 |
| 2033 | Heavy-Heavy Duty Trucks | HHDT | 0.01257 | 13.0982 | 0.00223 | 0.036 | 0.0089 | 0.036 | 0.06174 | 0.09774 | 0.008536 | 0.009 | 0.02646 | 0.03546 | 3816.62 | 0.0001035 |
| 2033 | Medium-Heavy Duty Trucks | MHDT | 0.1514 | 0.51359 | 0.02915 | 0.011 | 0.0033 | 0.012 | 0.13034 | 0.14234 | 0.00316799 | 0.003 | 0.05586 | 0.05886 | 1105.97 | 0.00135395 |
| 2033 | Light-Heavy Duty Trucks | LHD2 | 0.13476 | 0.0407 | 0.00328 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000827 | 0.002 | 0.03822 | 0.04022 | 704.71 | 0.001324 |
| 2033 | Light-Duty Trucks | LDT2 | 0.45827 | 0.03025 | 0.00556 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.000875 | 0.002 | 0.01575 | 0.01775 | 219.534 | 0.002246 |
| 2033 | Passenger Cars | LDA | 0.35813 | 0.02264 | 0.00425 | 0.002 | 0.0009 | 0.008 | 0.03675 | 0.04475 | 0.000852 | 0.002 | 0.01575 | 0.01775 | 174.576 | 0.001716 |
| 2033 | Light-Light Duty Trucks | LDT1 | 0.53693 | 0.03769 | 0.00786 | 0.002 | 0.0011 | 0.008 | 0.03675 | 0.04475 | 0.001037 | 0.002 | 0.01575 | 0.01775 | 198.903 | 0.003175 |
| 2034 | Heavy-Heavy Duty Trucks | HHDT | 0.01226 | 12.9622 | 0.00225 | 0.036 | 0.0085 | 0.036 | 0.06174 | 0.09774 | 0.00808607 | 0.009 | 0.02646 | 0.03546 | 3809.6 | 0.00010459 |
| 2034 | Medium-Heavy Duty Trucks | MHDT | 0.15088 | 0.48923 | 0.02899 | 0.011 | 0.0032 | 0.012 | 0.13034 | 0.14234 | 0.0030881 | 0.003 | 0.05586 | 0.05886 | 1104.33 | 0.00134655 |
| 2034 | Light-Heavy Duty Trucks | LHD2 | 0.13098 | 0.03819 | 0.00312 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00083225 | 0.002 | 0.03822 | 0.04022 | 703.415 | 0.00125881 |
| 2034 | Light-Duty Trucks | LDT2 | 0.44324 | 0.02871 | 0.00524 | 0.002 | 0.0009 | 0.008 | 0.03675 | 0.04475 | 0.00082231 | 0.002 | 0.01575 | 0.01775 | 216.221 | 0.00211922 |
| 2034 | Passenger Cars | LDA | 0.34464 | 0.02164 | 0.00399 | 0.002 | 0.0009 | 0.008 | 0.03675 | 0.04475 | 0.00080249 | 0.002 | 0.01575 | 0.01775 | 172.433 | 0.00161333 |
| 2034 | Light-Light Duty Trucks | LDT1 | 0.4872 | 0.03338 | 0.00687 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.00094983 | 0.002 | 0.01575 | 0.01775 | 195.395 | 0.0027759 |
| 2035 | Heavy-Heavy Duty Trucks | HHDT | 0.01205 | 12.8738 | 0.00226 | 0.036 | 0.0082 | 0.036 | 0.06174 | 0.09774 | 0.00784005 | 0.009 | 0.02646 | 0.03546 | 3804.9 | 0.00010509 |
| 2035 | Medium-Heavy Duty Trucks | MHDT | 0.1503 | 0.46737 | 0.02883 | 0.011 | 0.0031 | 0.012 | 0.13034 | 0.14234 | 0.00301284 | 0.003 | 0.05586 | 0.05886 | 1102.91 | 0.00133887 |
| 2035 | Light-Heavy Duty Trucks | LHD2 | 0.1277 | 0.03603 | 0.00297 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00083665 | 0.002 | 0.03822 | 0.04022 | 702.3 | 0.00120162 |
| 2035 | Light-Duty Trucks | LDT2 | 0.42941 | 0.02732 | 0.00496 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.00077313 | 0.002 | 0.01575 | 0.01775 | 213.383 | 0.00200483 |
| 2035 | Passenger Cars | LDA | 0.33165 | 0.02078 | 0.00375 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.00075598 | 0.002 | 0.01575 | 0.01775 | 170.592 | 0.00151659 |
| 2035 | Light-Light Duty Trucks | LDT1 | 0.45132 | 0.03084 | 0.00616 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.0008808 | 0.002 | 0.01575 | 0.01775 | 192.368 | 0.00248923 |
| 2036 | Heavy-Heavy Duty Trucks | HHDT | 0.01195 | 12.804 | 0.00228 | 0.036 | 0.0082 | 0.036 | 0.06174 | 0.09774 | 0.0078152 | 0.009 | 0.02646 | 0.03546 | 3801.69 | 0.00010572 |
| 2036 | Medium-Heavy Duty Trucks | MHDT | 0.14974 | 0.44799 | 0.02868 | 0.011 | 0.0031 | 0.012 | 0.13034 | 0.14234 | 0.00295569 | 0.003 | 0.05586 | 0.05886 | 1102.89 | 0.00133198 |
| 2036 | Light-Heavy Duty Trucks | LHD2 | 0.12525 | 0.03414 | 0.00287 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00084127 | 0.002 | 0.03822 | 0.04022 | 701.361 | 0.00115849 |
| 2036 | Light-Duty Trucks | LDT2 | 0.416 | 0.02594 | 0.00468 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.0007285 | 0.002 | 0.01575 | 0.01775 | 210.957 | 0.00189286 |
| 2036 | Passenger Cars | LDA | 0.32005 | 0.02004 | 0.00354 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.00071577 | 0.002 | 0.01575 | 0.01775 | 169.033 | 0.00143208 |
| 2036 | Light-Light Duty Trucks | LDT1 | 0.42052 | 0.02862 | 0.00554 | 0.002 | 0.0009 | 0.008 | 0.03675 | 0.04475 | 0.00082898 | 0.002 | 0.01575 | 0.01775 | 189.69 | 0.00224049 |
| 2037 | Heavy-Heavy Duty Trucks | HHDT | 0.01188 | 12.7412 | 0.0023 | 0.036 | 0.0082 | 0.036 | 0.06174 | 0.09774 | 0.007837 | 0.009 | 0.02646 | 0.03546 | 3800.48 | 0.0001068 |
| 2037 | Medium-Heavy Duty Trucks | MHDT | 0.14916 | 0.43076 | 0.02853 | 0.011 | 0.003 | 0.012 | 0.13034 | 0.14234 | 0.00290715 | 0.003 | 0.05586 | 0.05886 | 1101.67 | 0.0013252 |
| 2037 | Light-Heavy Duty Trucks | LHD2 | 0.12376 | 0.03265 | 0.00279 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000845 | 0.002 | 0.03822 | 0.04022 | 700.585 | 0.001128 |
| 2037 | Light-Duty Trucks | LDT2 | 0.40463 | 0.02482 | 0.00446 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.000688 | 0.002 | 0.01575 | 0.01775 | 208.943 | 0.001801 |
| 2037 | Passenger Cars | LDA | 0.31019 | 0.01943 | 0.00337 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.000679 | 0.002 | 0.01575 | 0.01775 | 167.735 | 0.001363 |
| 2037 | Light-Light Duty Trucks | LDT1 | 0.39675 | 0.0269 | 0.00508 | 0.002 | 0.0009 | 0.008 | 0.03675 | 0.04475 | 0.000784 | 0.002 | 0.01575 | 0.01775 | 187.398 | 0.002051 |
| 2038 | Heavy-Heavy Duty Trucks | HHDT | 0.01186 | 12.658 | 0.00236 | 0.036 | 0.0083 | 0.036 | 0.06174 | 0.09774 | 0.007922 | 0.009 | 0.02646 | 0.03546 | 3800.85 | 0.00010939 |
| 2038 | Medium-Heavy Duty Trucks | MHDT | 0.14869 | 0.41673 | 0.02841 | 0.011 | 0.003 | 0.012 | 0.13034 | 0.14234 | 0.0028665 | 0.003 | 0.05586 | 0.05886 | 1100.67 | 0.00131968 |
| 2038 | Light-Heavy Duty Trucks | LHD2 | 0.12226 | 0.03129 | 0.00272 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000849 | 0.002 | 0.03822 | 0.04022 | 699.948 | 0.001099 |
| 2038 | Light-Duty Trucks | LDT2 | 0.39498 | 0.02383 | 0.00426 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.000653 | 0.002 | 0.01575 | 0.01775 | 207.286 | 0.001723 |
| 2038 | Passenger Cars | LDA | 0.30209 | 0.01894 | 0.00324 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.000647 | 0.002 | 0.01575 | 0.01775 | 166.666 | 0.001309 |
| 2038 | Light-Light Duty Trucks | LDT1 | 0.37931 | 0.02534 | 0.00469 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.000742 | 0.002 | 0.01575 | 0.01775 | 185.387 | 0.001896 |
| 2039 | Heavy-Heavy Duty Trucks | HHDT | 0.01199 | 12.5982 | 0.00244 | 0.036 | 0.0085 | 0.036 | 0.06174 | 0.09774 | 0.00816091 | 0.009 | 0.02646 | 0.03546 | 3808.02 | 0.00011348 |
| 2039 | Medium-Heavy Duty Trucks | MHDT | 0.14833 | 0.40561 | 0.02832 | 0.01 | 0.003 | 0.012 | 0.13034 | 0.14234 | 0.00283351 | 0.003 | 0.05586 | 0.05886 | 1099.88 | 0.00131538 |
| 2039 | Light-Heavy Duty Trucks | LHD2 | 0.12005 | 0.02993 | 0.00264 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085081 | 0.002 | 0.03822 | 0.04022 | 699.424 | 0.00106497 |
| 2039 | Light-Duty Trucks | LDT2 | 0.38734 | 0.02303 | 0.00412 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.00062109 | 0.002 | 0.01575 | 0.01775 | 205.943 | 0.00166316 |
| 2039 | Passenger Cars | LDA | 0.29581 | 0.01857 | 0.00314 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.00061766 | 0.002 | 0.01575 | 0.01775 | 165.791 | 0.00127061 |
| 2039 | Light-Light Duty Trucks | LDT1 | 0.36537 | 0.02412 | 0.00438 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.00070246 | 0.002 | 0.01575 | 0.01775 | 183.576 | 0.00177097 |
| 2040 | Heavy-Heavy Duty Trucks | HHDT | 0.01222 | 12.49 | 0.00258 | 0.036 | 0.0089 | 0.036 | 0.06174 | 0.09774 | 0.00849272 | 0.009 | 0.02646 | 0.03546 | 3816.58 | 0.00011971 |
| 2040 | Medium-Heavy Duty Trucks | MHDT | 0.14805 | 0.39638 | 0.02824 | 0.01 | 0.0029 | 0.012 | 0.13034 | 0.14234 | 0.00280555 | 0.003 | 0.05586 | 0.05886 | 1099.22 | 0.00131187 |
| 2040 | Light-Heavy Duty Trucks | LHD2 | 0.11889 | 0.02891 | 0.00258 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085286 | 0.002 | 0.03822 | 0.04022 | 699.01 | 0.00104422 |

## Chiquita Canyon Landfill EIR

### EMFAC2014 Onroad Vehicle Emission Factors

**EMFAC2014: Passenger Cars (LDA), Light-Duty Trucks (LDT2), Light-Heavy-Duty Trucks (LHD2),**

Exhaust emission factors from EMFAC2014 for Los Angeles (SC). A speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions. Version: EMFAC2014 Version 1.0.7. Run date: 2015/9/22 13:48; Season: Annual; Area: Los Angeles (SC); EMFAC2011 Vehicle Categories; Fuel: Gasoline.

**EMFAC2014: Medium-Heavy-Duty Trucks (MHDT), Heavy-Heavy-Duty Trucks (HHDT)**

Exhaust emission factors from EMFAC2014 for Los Angeles (SC); EMFAC2011 Vehicle Categories; Region: Los Angeles (SC); Season: Annual Average; Fuel: Diesel; Speed: 40mph (combined speeds for PM fugitive and SOx). MHDT is average of T6 instate construction heavy, T6 instate construction small, T6 instate heavy, T6 instate small, and T6 Public. HHDT is T7 SWCV (Solid Waste Collection Truck). EMFAC does not predict methane emissions from MHDT and HHDT.

Running Exhaust Emissions **(grams/mile)**

| Year | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$-Tire Wear | $PM_{10}$-Break Wear | PM10 Fugitive | $PM_{2.5}$ | $PM^{2.5}$-Tire Wear | $PM^{2.5}$-Break Wear (Fugitive) | PM2.5 Fugitive | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi |
| 2040 | Light-Duty Trucks | LDT2 | 0.38097 | 0.02242 | 0.00399 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00059347 | 0.002 | 0.01575 | 0.01775 | 204.858 | 0.00161284 |
| 2040 | Passenger Cars | LDA | 0.29066 | 0.01827 | 0.00307 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00059186 | 0.002 | 0.01575 | 0.01775 | 165.08 | 0.00124075 |
| 2040 | Light-Light Duty Trucks | LDT1 | 0.35425 | 0.02312 | 0.00414 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.00066765 | 0.002 | 0.01575 | 0.01775 | 181.99 | 0.00167488 |
| 2041 | Heavy-Heavy Duty Trucks | HHDT | 0.01251 | 12.3288 | 0.00275 | 0.036 | 0.0093 | 0.036 | 0.06174 | 0.09774 | 0.008883 | 0.009 | 0.02646 | 0.03546 | 3824.47 | 0.00012748 |
| 2041 | Medium-Heavy Duty Trucks | MHDT | 0.14782 | 0.38864 | 0.02818 | 0.01 | 0.0029 | 0.012 | 0.13034 | 0.14234 | 0.00278276 | 0.003 | 0.05586 | 0.05886 | 1098.66 | 0.00130902 |
| 2041 | Light-Heavy Duty Trucks | LHD2 | 0.11871 | 0.02828 | 0.00256 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000855 | 0.002 | 0.03822 | 0.04022 | 698.684 | 0.001034 |
| 2041 | Light-Duty Trucks | LDT2 | 0.37586 | 0.02198 | 0.0039 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.000572 | 0.002 | 0.01575 | 0.01775 | 204.007 | 0.001576 |
| 2041 | Passenger Cars | LDA | 0.28654 | 0.01804 | 0.00302 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.000571 | 0.002 | 0.01575 | 0.01775 | 164.516 | 0.001218 |
| 2041 | Light-Light Duty Trucks | LDT1 | 0.34435 | 0.02234 | 0.00396 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.000644 | 0.002 | 0.01575 | 0.01775 | 180.61 | 0.001601 |
| 2042 | Heavy-Heavy Duty Trucks | HHDT | 0.01282 | 12.1066 | 0.00291 | 0.037 | 0.0097 | 0.036 | 0.06174 | 0.09774 | 0.0092391 | 0.009 | 0.02646 | 0.03546 | 3827.18 | 0.00013497 |
| 2042 | Medium-Heavy Duty Trucks | MHDT | 0.14764 | 0.38182 | 0.02813 | 0.01 | 0.0029 | 0.012 | 0.13034 | 0.14234 | 0.002763 | 0.003 | 0.05586 | 0.05886 | 1098.18 | 0.00130664 |
| 2042 | Light-Heavy Duty Trucks | LHD2 | 0.11858 | 0.02777 | 0.00254 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085606 | 0.002 | 0.03822 | 0.04022 | 698.427 | 0.00102524 |
| 2042 | Light-Duty Trucks | LDT2 | 0.37152 | 0.02161 | 0.00382 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00055391 | 0.002 | 0.01575 | 0.01775 | 203.33 | 0.00154516 |
| 2042 | Passenger Cars | LDA | 0.28309 | 0.01785 | 0.00297 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.0005542 | 0.002 | 0.01575 | 0.01775 | 164.065 | 0.00120004 |
| 2042 | Light-Light Duty Trucks | LDT1 | 0.33504 | 0.02165 | 0.00379 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.00062167 | 0.002 | 0.01575 | 0.01775 | 179.389 | 0.00153252 |
| 2043 | Heavy-Heavy Duty Trucks | HHDT | 0.01333 | 11.7491 | 0.00315 | 0.037 | 0.0102 | 0.036 | 0.06174 | 0.09774 | 0.00971437 | 0.009 | 0.02646 | 0.03546 | 3827.1 | 0.0001465 |
| 2043 | Medium-Heavy Duty Trucks | MHDT | 0.14752 | 0.37653 | 0.0281 | 0.01 | 0.0029 | 0.012 | 0.13034 | 0.14234 | 0.00274747 | 0.003 | 0.05586 | 0.05886 | 1097.78 | 0.00130503 |
| 2043 | Light-Heavy Duty Trucks | LHD2 | 0.1185 | 0.02739 | 0.00252 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.0008571 | 0.002 | 0.03822 | 0.04022 | 698.224 | 0.00101859 |
| 2043 | Light-Duty Trucks | LDT2 | 0.36806 | 0.02132 | 0.00377 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.0005392 | 0.002 | 0.01575 | 0.01775 | 202.796 | 0.00152169 |
| 2043 | Passenger Cars | LDA | 0.28029 | 0.01771 | 0.00293 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00053981 | 0.002 | 0.01575 | 0.01775 | 163.709 | 0.00118573 |
| 2043 | Light-Light Duty Trucks | LDT1 | 0.32637 | 0.02104 | 0.00365 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.00060158 | 0.002 | 0.01575 | 0.01775 | 178.297 | 0.00147404 |
| 2044 | Heavy-Heavy Duty Trucks | HHDT | 0.01429 | 11.0498 | 0.0036 | 0.036 | 0.011 | 0.036 | 0.06174 | 0.09774 | 0.01047825 | 0.009 | 0.02646 | 0.03546 | 3822.54 | 0.00016705 |
| 2044 | Medium-Heavy Duty Trucks | MHDT | 0.14745 | 0.37203 | 0.02807 | 0.01 | 0.0029 | 0.012 | 0.13034 | 0.14234 | 0.00273426 | 0.003 | 0.05586 | 0.05886 | 1097.46 | 0.00130388 |
| 2044 | Light-Heavy Duty Trucks | LHD2 | 0.11842 | 0.02705 | 0.00251 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085791 | 0.002 | 0.03822 | 0.04022 | 698.056 | 0.0010129 |
| 2044 | Light-Duty Trucks | LDT2 | 0.36531 | 0.02109 | 0.00372 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00052741 | 0.002 | 0.01575 | 0.01775 | 202.374 | 0.00150427 |
| 2044 | Passenger Cars | LDA | 0.27802 | 0.0176 | 0.00291 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00052804 | 0.002 | 0.01575 | 0.01775 | 163.429 | 0.00117471 |
| 2044 | Light-Light Duty Trucks | LDT1 | 0.31949 | 0.02062 | 0.00355 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00058422 | 0.002 | 0.01575 | 0.01775 | 177.38 | 0.00143465 |
| 2045 | Heavy-Heavy Duty Trucks | HHDT | 0.01558 | 10.2441 | 0.00418 | 0.036 | 0.0118 | 0.036 | 0.06174 | 0.09774 | 0.01133 | 0.009 | 0.02646 | 0.03546 | 3817.2 | 0.00019393 |
| 2045 | Medium-Heavy Duty Trucks | MHDT | 0.14742 | 0.36843 | 0.02806 | 0.01 | 0.0028 | 0.012 | 0.13034 | 0.14234 | 0.00272335 | 0.003 | 0.05586 | 0.05886 | 1097.2 | 0.00130309 |
| 2045 | Light-Heavy Duty Trucks | LHD2 | 0.11836 | 0.0268 | 0.0025 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085857 | 0.002 | 0.03822 | 0.04022 | 697.922 | 0.00100847 |
| 2045 | Light-Duty Trucks | LDT2 | 0.363 | 0.02091 | 0.00369 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00051803 | 0.002 | 0.01575 | 0.01775 | 202.026 | 0.00149093 |
| 2045 | Passenger Cars | LDA | 0.2761 | 0.01751 | 0.00289 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00051851 | 0.002 | 0.01575 | 0.01775 | 163.2 | 0.00116596 |
| 2045 | Light-Light Duty Trucks | LDT1 | 0.31361 | 0.0203 | 0.00348 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00056907 | 0.002 | 0.01575 | 0.01775 | 176.552 | 0.00140651 |
| 2046 | Heavy-Heavy Duty Trucks | HHDT | 0.01744 | 9.29438 | 0.00498 | 0.036 | 0.0128 | 0.036 | 0.06174 | 0.09774 | 0.01228416 | 0.009 | 0.02646 | 0.03546 | 3810.74 | 0.0002312 |
| 2046 | Medium-Heavy Duty Trucks | MHDT | 0.1474 | 0.36547 | 0.02804 | 0.01 | 0.0028 | 0.012 | 0.13034 | 0.14234 | 0.00271411 | 0.003 | 0.05586 | 0.05886 | 1096.99 | 0.00130256 |
| 2046 | Light-Heavy Duty Trucks | LHD2 | 0.1183 | 0.02657 | 0.00249 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085907 | 0.002 | 0.03822 | 0.04022 | 697.812 | 0.0010046 |
| 2046 | Light-Duty Trucks | LDT2 | 0.36128 | 0.02076 | 0.00366 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00051085 | 0.002 | 0.01575 | 0.01775 | 201.754 | 0.00148081 |
| 2046 | Passenger Cars | LDA | 0.27461 | 0.01744 | 0.00287 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00051101 | 0.002 | 0.01575 | 0.01775 | 163.019 | 0.00115903 |
| 2046 | Light-Light Duty Trucks | LDT1 | 0.3083 | 0.02001 | 0.00342 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00055572 | 0.002 | 0.01575 | 0.01775 | 175.817 | 0.00138096 |

**lbs/VMT**

1gram = 0.0022046 lbs

| Year | | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$ (Fugitive) | $PM_{2.5}$ | $PM^{2.5}$ (Fugitive) | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT |
| 2017 | 2017Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.963E-05 | 3.182E-02 | 3.296E-06 | 8.124E-05 | 2.660E-05 | 2.155E-04 | 2.544E-05 | 7.818E-05 | 8.516E+00 | 1.531E-07 |
| 2017 | 2017Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 9.305E-04 | 8.453E-03 | 2.687E-04 | 2.421E-05 | 1.473E-04 | 3.138E-04 | 1.410E-04 | 1.298E-04 | 2.538E+00 | 1.248E-05 |
| 2017 | 2017Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.230E-03 | 6.085E-04 | 7.895E-05 | 1.678E-05 | 2.132E-06 | 2.142E-04 | 1.962E-06 | 8.867E-05 | 1.677E+00 | 3.098E-05 |
| 2017 | 2017Light-Duty Trucks | Light-Duty Trucks | LDT2 | 2.637E-03 | 2.812E-04 | 5.450E-05 | 7.738E-06 | 3.318E-06 | 9.866E-05 | 3.053E-06 | 3.913E-05 | 7.710E-01 | 1.886E-05 |
| 2017 | 2017Passenger Cars | Passenger Cars | LDA | 2.011E-03 | 1.672E-04 | 4.266E-05 | 5.777E-06 | 3.369E-06 | 9.866E-05 | 3.102E-06 | 3.913E-05 | 5.756E-01 | 1.431E-05 |
| 2017 | 2017Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 5.337E-03 | 4.884E-04 | 1.326E-04 | 6.792E-06 | 7.189E-06 | 9.866E-05 | 6.627E-06 | 3.913E-05 | 6.717E-01 | 4.192E-05 |
| 2018 | 2018Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.967E-05 | 3.162E-02 | 3.430E-06 | 8.121E-05 | 2.639E-05 | 2.155E-04 | 2.525E-05 | 7.818E-05 | 8.512E+00 | 1.593E-07 |
| 2018 | 2018Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 7.828E-04 | 7.326E-03 | 2.243E-04 | 2.420E-05 | 1.158E-04 | 3.138E-04 | 1.108E-04 | 1.298E-04 | 2.536E+00 | 1.042E-05 |
| 2018 | 2018Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 1.870E-03 | 5.342E-04 | 6.615E-05 | 1.666E-05 | 2.028E-06 | 1.984E-03 | 1.867E-06 | 8.867E-05 | 1.666E+00 | 2.599E-05 |
| 2018 | 2018Light-Duty Trucks | Light-Duty Trucks | LDT2 | 2.320E-03 | 2.403E-04 | 4.446E-05 | 7.522E-06 | 3.278E-06 | 9.866E-05 | 3.016E-06 | 3.913E-05 | 7.500E-01 | 1.650E-05 |
| 2018 | 2018Passenger Cars | Passenger Cars | LDA | 1.796E-03 | 1.471E-04 | 3.433E-05 | 5.622E-06 | 3.342E-06 | 9.866E-05 | 3.075E-06 | 3.913E-05 | 5.603E-01 | 1.263E-05 |
| 2018 | 2018Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 4.637E-03 | 4.230E-04 | 9.971E-05 | 6.629E-06 | 6.576E-06 | 9.866E-05 | 6.052E-06 | 3.913E-05 | 6.567E-01 | 3.669E-05 |
| 2019 | 2019Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.961E-05 | 3.138E-02 | 3.578E-06 | 8.113E-05 | 2.601E-05 | 2.155E-04 | 2.490E-05 | 7.818E-05 | 8.506E+00 | 1.662E-07 |
| 2019 | 2019Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 6.994E-04 | 6.453E-03 | 1.977E-04 | 2.414E-05 | 9.771E-05 | 3.138E-04 | 9.348E-05 | 1.298E-04 | 2.530E+00 | 9.185E-06 |
| 2019 | 2019Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 1.560E-03 | 4.673E-04 | 5.497E-05 | 1.653E-05 | 1.947E-06 | 2.142E-04 | 1.790E-06 | 8.867E-05 | 1.654E+00 | 2.164E-05 |
| 2019 | 2019Light-Duty Trucks | Light-Duty Trucks | LDT2 | 2.064E-03 | 2.068E-04 | 3.691E-05 | 7.308E-06 | 3.272E-06 | 9.866E-05 | 3.009E-06 | 3.913E-05 | 7.291E-01 | 1.456E-05 |
| 2019 | 2019Passenger Cars | Passenger Cars | LDA | 1.625E-03 | 1.307E-04 | 2.814E-05 | 5.463E-06 | 3.338E-06 | 9.866E-05 | 3.069E-06 | 3.913E-05 | 5.449E-01 | 1.127E-05 |
| 2019 | 2019Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 4.173E-03 | 3.775E-04 | 8.391E-05 | 6.475E-06 | 6.195E-06 | 9.866E-05 | 5.699E-06 | 3.913E-05 | 6.418E-01 | 3.287E-05 |
| 2020 | 2020Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.956E-05 | 3.113E-02 | 3.727E-06 | 8.109E-05 | 2.565E-05 | 2.155E-04 | 2.454E-05 | 7.818E-05 | 8.500E+00 | 1.731E-07 |
| 2020 | 2020Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 5.391E-04 | 5.210E-03 | 1.490E-04 | 2.409E-05 | 6.702E-05 | 3.138E-04 | 6.412E-05 | 1.298E-04 | 2.525E+00 | 6.922E-06 |
| 2020 | 2020Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 1.297E-03 | 4.091E-04 | 4.545E-05 | 1.642E-05 | 1.881E-06 | 2.142E-04 | 1.730E-06 | 8.867E-05 | 1.643E+00 | 1.813E-05 |
| 2020 | 2020Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.868E-03 | 1.813E-04 | 3.204E-05 | 7.098E-06 | 3.252E-06 | 9.866E-05 | 2.991E-06 | 3.913E-05 | 7.082E-01 | 1.289E-05 |
| 2020 | 2020Passenger Cars | Passenger Cars | LDA | 1.505E-03 | 1.180E-04 | 2.522E-05 | 5.311E-06 | 3.303E-06 | 9.866E-05 | 3.038E-06 | 3.913E-05 | 5.298E-01 | 1.012E-05 |
| 2020 | 2020Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 3.786E-03 | 3.395E-04 | 7.305E-05 | 6.316E-06 | 5.852E-06 | 9.866E-05 | 5.383E-06 | 3.913E-05 | 6.267E-01 | 2.923E-05 |
| 2021 | 2021Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.941E-05 | 3.083E-02 | 3.893E-06 | 8.102E-05 | 2.513E-05 | 2.155E-04 | 2.401E-05 | 7.818E-05 | 8.491E+00 | 1.808E-07 |
| 2021 | 2021Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.762E-04 | 4.032E-03 | 9.248E-05 | 2.406E-05 | 2.170E-05 | 3.138E-04 | 2.076E-05 | 1.298E-04 | 2.522E+00 | 4.296E-06 |
| 2021 | 2021Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 1.081E-03 | 3.568E-04 | 3.739E-05 | 1.631E-05 | 1.836E-06 | 2.142E-04 | 1.689E-06 | 8.867E-05 | 1.632E+00 | 1.511E-05 |
| 2021 | 2021Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.726E-03 | 1.616E-04 | 2.904E-05 | 6.863E-06 | 3.214E-06 | 9.866E-05 | 2.954E-06 | 3.913E-05 | 6.850E-01 | 1.170E-05 |
| 2021 | 2021Passenger Cars | Passenger Cars | LDA | 1.410E-03 | 1.076E-04 | 2.283E-05 | 5.157E-06 | 3.239E-06 | 9.866E-05 | 2.976E-06 | 3.913E-05 | 5.144E-01 | 9.180E-06 |
| 2021 | 2021Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 3.458E-03 | 3.069E-04 | 6.564E-05 | 6.138E-06 | 5.514E-06 | 9.866E-05 | 5.071E-06 | 3.913E-05 | 6.093E-01 | 2.631E-05 |
| 2022 | 2022Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.950E-05 | 3.066E-02 | 4.023E-06 | 8.098E-05 | 2.492E-05 | 2.155E-04 | 2.384E-05 | 7.818E-05 | 8.488E+00 | 1.868E-07 |
| 2022 | 2022Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.727E-04 | 3.600E-03 | 8.918E-05 | 2.398E-05 | 1.935E-05 | 3.138E-04 | 1.852E-05 | 1.298E-04 | 2.513E+00 | 4.142E-06 |
| 2022 | 2022Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 9.106E-04 | 3.088E-04 | 3.070E-05 | 1.620E-05 | 1.812E-06 | 2.142E-04 | 1.666E-06 | 8.867E-05 | 1.622E+00 | 1.241E-05 |
| 2022 | 2022Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.616E-03 | 1.459E-04 | 2.656E-05 | 6.629E-06 | 3.194E-06 | 9.866E-05 | 2.937E-06 | 3.913E-05 | 6.616E-01 | 1.071E-05 |
| 2022 | 2022Passenger Cars | Passenger Cars | LDA | 1.331E-03 | 9.870E-05 | 2.080E-05 | 5.004E-06 | 3.201E-06 | 9.866E-05 | 2.943E-06 | 3.913E-05 | 4.993E-01 | 8.375E-06 |
| 2022 | 2022Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 3.158E-03 | 2.774E-04 | 5.883E-05 | 5.954E-06 | 5.213E-06 | 9.866E-05 | 4.794E-06 | 3.913E-05 | 5.914E-01 | 2.363E-05 |
| 2023 | 2023Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.946E-05 | 3.044E-02 | 4.167E-06 | 8.092E-05 | 2.453E-05 | 2.155E-04 | 2.347E-05 | 7.818E-05 | 8.482E+00 | 1.936E-07 |
| 2023 | 2023Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.359E-04 | 2.167E-03 | 6.743E-05 | 2.383E-05 | 1.113E-05 | 3.138E-04 | 1.065E-05 | 1.298E-04 | 2.498E+00 | 3.132E-06 |
| 2023 | 2023Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 7.805E-04 | 2.694E-04 | 2.586E-05 | 1.611E-05 | 1.805E-06 | 2.142E-04 | 1.660E-06 | 8.867E-05 | 1.613E+00 | 1.045E-05 |
| 2023 | 2023Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.521E-03 | 1.321E-04 | 2.427E-05 | 6.392E-06 | 3.188E-06 | 9.866E-05 | 2.932E-06 | 3.913E-05 | 6.381E-01 | 9.800E-06 |
| 2023 | 2023Passenger Cars | Passenger Cars | LDA | 1.256E-03 | 9.101E-05 | 1.899E-05 | 4.855E-06 | 3.180E-06 | 9.866E-05 | 2.924E-06 | 3.913E-05 | 4.844E-01 | 7.655E-06 |
| 2023 | 2023Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 2.864E-03 | 2.497E-04 | 5.224E-05 | 5.764E-06 | 4.935E-06 | 9.866E-05 | 4.538E-06 | 3.913E-05 | 5.729E-01 | 2.107E-05 |
| 2024 | 2024Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.943E-05 | 3.023E-02 | 4.304E-06 | 8.087E-05 | 2.416E-05 | 2.155E-04 | 2.311E-05 | 7.818E-05 | 8.476E+00 | 1.999E-07 |
| 2024 | 2024Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.378E-04 | 2.016E-03 | 6.737E-05 | 2.376E-05 | 1.055E-05 | 3.138E-04 | 1.010E-05 | 1.298E-04 | 2.491E+00 | 3.129E-06 |
| 2024 | 2024Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 6.813E-04 | 2.360E-04 | 2.217E-05 | 1.602E-05 | 1.812E-06 | 2.142E-04 | 1.666E-06 | 8.867E-05 | 1.604E+00 | 8.960E-06 |
| 2024 | 2024Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.447E-03 | 1.204E-04 | 2.227E-05 | 6.159E-06 | 3.189E-06 | 9.866E-05 | 2.932E-06 | 3.913E-05 | 6.149E-01 | 8.996E-06 |
| 2024 | 2024Passenger Cars | Passenger Cars | LDA | 1.182E-03 | 8.403E-05 | 1.730E-05 | 4.706E-06 | 3.167E-06 | 9.866E-05 | 2.912E-06 | 3.913E-05 | 4.697E-01 | 6.991E-06 |

**lbs/VMT**

1gram = 0.0022046 lbs

| Year | | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$ (Fugitive) | $PM_{2.5}$ | $PM^{2.5}$ (Fugitive) | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT |
| 2024 | 2024Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 2.633E-03 | 2.267E-04 | 4.704E-05 | 5.573E-06 | 4.701E-06 | 9.866E-05 | 4.322E-06 | 3.913E-05 | 5.542E-01 | 1.899E-05 |
| 2025 | 2025Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.943E-05 | 3.005E-02 | 4.427E-06 | 8.082E-05 | 2.383E-05 | 2.155E-04 | 2.279E-05 | 7.818E-05 | 8.471E+00 | 2.056E-07 |
| 2025 | 2025Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.389E-04 | 1.875E-03 | 6.720E-05 | 2.369E-05 | 1.003E-05 | 3.138E-04 | 9.592E-06 | 1.298E-04 | 2.483E+00 | 3.121E-06 |
| 2025 | 2025Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 6.084E-04 | 2.084E-04 | 1.951E-05 | 1.593E-05 | 1.828E-06 | 2.142E-04 | 1.682E-06 | 8.867E-05 | 1.595E+00 | 7.884E-06 |
| 2025 | 2025Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.371E-03 | 1.107E-04 | 2.056E-05 | 5.930E-06 | 3.197E-06 | 9.866E-05 | 2.939E-06 | 3.913E-05 | 5.921E-01 | 8.309E-06 |
| 2025 | 2025Passenger Cars | Passenger Cars | LDA | 1.116E-03 | 7.847E-05 | 1.602E-05 | 4.557E-06 | 3.170E-06 | 9.866E-05 | 2.914E-06 | 3.913E-05 | 4.549E-01 | 6.475E-06 |
| 2025 | 2025Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 2.420E-03 | 2.064E-04 | 4.249E-05 | 5.384E-06 | 4.500E-06 | 9.866E-05 | 4.136E-06 | 3.913E-05 | 5.355E-01 | 1.717E-05 |
| 2026 | 2026Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.939E-05 | 2.987E-02 | 4.541E-06 | 8.077E-05 | 2.344E-05 | 2.155E-04 | 2.242E-05 | 7.818E-05 | 8.466E+00 | 2.109E-07 |
| 2026 | 2026Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.391E-04 | 1.740E-03 | 6.689E-05 | 2.362E-05 | 9.527E-06 | 3.138E-04 | 9.115E-06 | 1.298E-04 | 2.476E+00 | 3.107E-06 |
| 2026 | 2026Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 5.332E-04 | 1.829E-04 | 1.658E-05 | 1.585E-05 | 1.845E-06 | 2.142E-04 | 1.697E-06 | 8.867E-05 | 1.588E+00 | 6.699E-06 |
| 2026 | 2026Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.308E-03 | 1.026E-04 | 1.911E-05 | 5.731E-06 | 3.145E-06 | 9.866E-05 | 2.892E-06 | 3.913E-05 | 5.722E-01 | 7.722E-06 |
| 2026 | 2026Passenger Cars | Passenger Cars | LDA | 1.062E-03 | 7.368E-05 | 1.493E-05 | 4.430E-06 | 3.108E-06 | 9.866E-05 | 2.858E-06 | 3.913E-05 | 4.422E-01 | 6.032E-06 |
| 2026 | 2026Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 2.234E-03 | 1.893E-04 | 3.854E-05 | 5.216E-06 | 4.302E-06 | 9.866E-05 | 3.955E-06 | 3.913E-05 | 5.190E-01 | 1.557E-05 |
| 2027 | 2027Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.940E-05 | 2.976E-02 | 4.626E-06 | 8.073E-05 | 2.317E-05 | 2.155E-04 | 2.217E-05 | 7.818E-05 | 8.462E+00 | 2.149E-07 |
| 2027 | 2027Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.383E-04 | 1.611E-03 | 6.643E-05 | 2.355E-05 | 9.071E-06 | 3.138E-04 | 8.678E-06 | 1.298E-04 | 2.468E+00 | 3.086E-06 |
| 2027 | 2027Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 4.728E-04 | 1.613E-04 | 1.426E-05 | 1.579E-05 | 1.866E-06 | 2.142E-04 | 1.716E-06 | 8.867E-05 | 1.581E+00 | 5.762E-06 |
| 2027 | 2027Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.254E-03 | 9.560E-05 | 1.784E-05 | 5.555E-06 | 3.022E-06 | 9.866E-05 | 2.779E-06 | 3.913E-05 | 5.547E-01 | 7.208E-06 |
| 2027 | 2027Passenger Cars | Passenger Cars | LDA | 1.013E-03 | 6.930E-05 | 1.392E-05 | 4.315E-06 | 2.967E-06 | 9.866E-05 | 2.728E-06 | 3.913E-05 | 4.308E-01 | 5.625E-06 |
| 2027 | 2027Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 2.062E-03 | 1.735E-04 | 3.488E-05 | 5.064E-06 | 4.053E-06 | 9.866E-05 | 3.727E-06 | 3.913E-05 | 5.041E-01 | 1.410E-05 |
| 2028 | 2028Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.937E-05 | 2.966E-02 | 4.696E-06 | 8.069E-05 | 2.286E-05 | 2.155E-04 | 2.188E-05 | 7.818E-05 | 8.458E+00 | 2.181E-07 |
| 2028 | 2028Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.381E-04 | 1.507E-03 | 6.610E-05 | 2.349E-05 | 8.691E-06 | 3.138E-04 | 8.315E-06 | 1.298E-04 | 2.462E+00 | 3.070E-06 |
| 2028 | 2028Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 4.294E-04 | 1.439E-04 | 1.253E-05 | 1.572E-05 | 1.892E-06 | 2.142E-04 | 1.739E-06 | 8.867E-05 | 1.575E+00 | 5.062E-06 |
| 2028 | 2028Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.206E-03 | 8.944E-05 | 1.671E-05 | 5.399E-06 | 2.835E-06 | 9.866E-05 | 2.608E-06 | 3.913E-05 | 5.391E-01 | 6.750E-06 |
| 2028 | 2028Passenger Cars | Passenger Cars | LDA | 9.690E-04 | 6.532E-05 | 1.300E-05 | 4.213E-06 | 2.760E-06 | 9.866E-05 | 2.537E-06 | 3.913E-05 | 4.207E-01 | 5.251E-06 |
| 2028 | 2028Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.912E-03 | 1.590E-04 | 3.188E-05 | 4.927E-06 | 3.768E-06 | 9.866E-05 | 3.466E-06 | 3.913E-05 | 4.906E-01 | 1.288E-05 |
| 2029 | 2029Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.913E-05 | 2.948E-02 | 4.775E-06 | 8.062E-05 | 2.226E-05 | 2.155E-04 | 2.129E-05 | 7.818E-05 | 8.450E+00 | 2.218E-07 |
| 2029 | 2029Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.376E-04 | 1.416E-03 | 6.577E-05 | 2.343E-05 | 8.352E-06 | 3.138E-04 | 7.990E-06 | 1.298E-04 | 2.456E+00 | 3.055E-06 |
| 2029 | 2029Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 3.938E-04 | 1.293E-04 | 1.117E-05 | 1.567E-05 | 1.914E-06 | 2.142E-04 | 1.759E-06 | 8.867E-05 | 1.570E+00 | 4.513E-06 |
| 2029 | 2029Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.162E-03 | 8.387E-05 | 1.564E-05 | 5.260E-06 | 2.665E-06 | 9.866E-05 | 2.452E-06 | 3.913E-05 | 5.253E-01 | 6.321E-06 |
| 2029 | 2029Passenger Cars | Passenger Cars | LDA | 9.269E-04 | 6.157E-05 | 1.213E-05 | 4.123E-06 | 2.586E-06 | 9.866E-05 | 2.379E-06 | 3.913E-05 | 4.117E-01 | 4.899E-06 |
| 2029 | 2029Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.750E-03 | 1.433E-04 | 2.862E-05 | 4.802E-06 | 3.490E-06 | 9.866E-05 | 3.208E-06 | 3.913E-05 | 4.782E-01 | 1.157E-05 |
| 2030 | 2030Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.892E-05 | 2.936E-02 | 4.823E-06 | 8.055E-05 | 2.175E-05 | 2.155E-04 | 2.080E-05 | 7.818E-05 | 8.443E+00 | 2.240E-07 |
| 2030 | 2030Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.368E-04 | 1.334E-03 | 6.538E-05 | 2.338E-05 | 8.039E-06 | 3.138E-04 | 7.691E-06 | 1.298E-04 | 6.538E-05 | 3.037E-06 |
| 2030 | 2030Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 3.641E-04 | 1.168E-04 | 9.985E-06 | 1.562E-05 | 1.934E-06 | 2.142E-04 | 1.778E-06 | 8.867E-05 | 1.565E+00 | 4.035E-06 |
| 2030 | 2030Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.121E-03 | 7.893E-05 | 1.469E-05 | 5.137E-06 | 2.511E-06 | 9.866E-05 | 2.309E-06 | 3.913E-05 | 5.129E-01 | 5.935E-06 |
| 2030 | 2030Passenger Cars | Passenger Cars | LDA | 8.886E-04 | 5.820E-05 | 1.134E-05 | 4.042E-06 | 2.435E-06 | 9.866E-05 | 2.239E-06 | 3.913E-05 | 4.036E-01 | 4.580E-06 |
| 2030 | 2030Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.596E-03 | 1.274E-04 | 2.551E-05 | 4.685E-06 | 3.219E-06 | 9.866E-05 | 2.960E-06 | 3.913E-05 | 4.669E-01 | 1.031E-05 |
| 2031 | 2031Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.862E-05 | 2.923E-02 | 4.858E-06 | 8.047E-05 | 2.115E-05 | 2.155E-04 | 2.023E-05 | 7.818E-05 | 8.435E+00 | 2.256E-07 |
| 2031 | 2031Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.358E-04 | 1.260E-03 | 6.499E-05 | 2.334E-05 | 7.754E-06 | 3.138E-04 | 7.419E-06 | 1.298E-04 | 2.446E+00 | 3.019E-06 |
| 2031 | 2031Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 3.325E-04 | 1.055E-04 | 8.719E-06 | 1.558E-05 | 1.950E-06 | 2.142E-04 | 1.793E-06 | 8.867E-05 | 1.561E+00 | 3.523E-06 |
| 2031 | 2031Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.082E-03 | 7.444E-05 | 1.381E-05 | 5.027E-06 | 2.366E-06 | 9.866E-05 | 2.176E-06 | 3.913E-05 | 5.020E-01 | 5.579E-06 |
| 2031 | 2031Passenger Cars | Passenger Cars | LDA | 8.532E-04 | 5.516E-05 | 1.062E-05 | 3.971E-06 | 2.296E-06 | 9.866E-05 | 2.111E-06 | 3.913E-05 | 3.965E-01 | 4.290E-06 |
| 2031 | 2031Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.432E-03 | 1.098E-04 | 2.225E-05 | 4.578E-06 | 2.941E-06 | 9.866E-05 | 2.704E-06 | 3.913E-05 | 4.564E-01 | 8.989E-06 |
| 2032 | 2032Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.820E-05 | 2.905E-02 | 4.890E-06 | 8.038E-05 | 2.041E-05 | 2.155E-04 | 1.953E-05 | 7.818E-05 | 8.425E+00 | 2.271E-07 |
| 2032 | 2032Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.348E-04 | 1.192E-03 | 6.461E-05 | 2.330E-05 | 7.507E-06 | 3.138E-04 | 7.182E-06 | 1.298E-04 | 2.442E+00 | 3.001E-06 |
| 2032 | 2032Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 3.052E-04 | 9.605E-05 | 7.576E-06 | 1.554E-05 | 1.966E-06 | 2.142E-04 | 1.807E-06 | 8.867E-05 | 1.557E+00 | 3.061E-06 |
| 2032 | 2032Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.045E-03 | 7.041E-05 | 1.300E-05 | 4.931E-06 | 2.229E-06 | 9.866E-05 | 2.049E-06 | 3.913E-05 | 4.924E-01 | 5.253E-06 |

**lbs/VMT**

1gram = 0.0022046 lbs

| Year | | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$ (Fugitive) | $PM_{2.5}$ | $PM^{2.5}$ (Fugitive) | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT |
| 2032 | 2032Passenger Cars | Passenger Cars | LDA | 8.201E-04 | 5.239E-05 | 9.957E-06 | 3.908E-06 | 2.165E-06 | 9.866E-05 | 1.991E-06 | 3.913E-05 | 3.903E-01 | 4.024E-06 |
| 2032 | 2032Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.294E-03 | 9.502E-05 | 1.951E-05 | 4.481E-06 | 2.698E-06 | 9.866E-05 | 2.480E-06 | 3.913E-05 | 4.469E-01 | 7.884E-06 |
| 2033 | 2033Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.772E-05 | 2.888E-02 | 4.912E-06 | 8.027E-05 | 1.967E-05 | 2.155E-04 | 1.882E-05 | 7.818E-05 | 8.414E+00 | 2.282E-07 |
| 2033 | 2033Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.338E-04 | 1.132E-03 | 6.426E-05 | 2.326E-05 | 7.300E-06 | 3.138E-04 | 6.984E-06 | 1.298E-04 | 2.438E+00 | 2.985E-06 |
| 2033 | 2033Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.971E-04 | 8.973E-05 | 7.220E-06 | 1.551E-05 | 1.982E-06 | 2.142E-04 | 1.823E-06 | 8.867E-05 | 1.554E+00 | 2.919E-06 |
| 2033 | 2033Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.010E-03 | 6.669E-05 | 1.225E-05 | 4.846E-06 | 2.097E-06 | 9.866E-05 | 1.929E-06 | 3.913E-05 | 4.840E-01 | 4.952E-06 |
| 2033 | 2033Passenger Cars | Passenger Cars | LDA | 7.895E-04 | 4.991E-05 | 9.363E-06 | 3.854E-06 | 2.041E-06 | 9.866E-05 | 1.878E-06 | 3.913E-05 | 3.849E-01 | 3.783E-06 |
| 2033 | 2033Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.184E-03 | 8.308E-05 | 1.732E-05 | 4.396E-06 | 2.487E-06 | 9.866E-05 | 2.286E-06 | 3.913E-05 | 4.385E-01 | 7.000E-06 |
| 2034 | 2034Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.702E-05 | 2.858E-02 | 4.964E-06 | 8.013E-05 | 1.863E-05 | 2.155E-04 | 1.783E-05 | 7.818E-05 | 8.399E+00 | 2.306E-07 |
| 2034 | 2034Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.326E-04 | 1.079E-03 | 6.391E-05 | 2.323E-05 | 7.116E-06 | 3.138E-04 | 6.808E-06 | 1.298E-04 | 2.435E+00 | 2.969E-06 |
| 2034 | 2034Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.888E-04 | 8.420E-05 | 6.868E-06 | 1.548E-05 | 1.995E-06 | 2.142E-04 | 1.835E-06 | 8.867E-05 | 1.551E+00 | 2.775E-06 |
| 2034 | 2034Light-Duty Trucks | Light-Duty Trucks | LDT2 | 9.772E-04 | 6.329E-05 | 1.156E-05 | 4.773E-06 | 1.972E-06 | 9.866E-05 | 1.813E-06 | 3.913E-05 | 4.767E-01 | 4.672E-06 |
| 2034 | 2034Passenger Cars | Passenger Cars | LDA | 7.598E-04 | 4.772E-05 | 8.802E-06 | 3.806E-06 | 1.924E-06 | 9.866E-05 | 1.769E-06 | 3.913E-05 | 3.801E-01 | 3.557E-06 |
| 2034 | 2034Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.074E-03 | 7.358E-05 | 1.514E-05 | 4.316E-06 | 2.277E-06 | 9.866E-05 | 2.094E-06 | 3.913E-05 | 4.308E-01 | 6.120E-06 |
| 2035 | 2035Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.656E-05 | 2.838E-02 | 4.988E-06 | 8.003E-05 | 1.807E-05 | 2.155E-04 | 1.728E-05 | 7.818E-05 | 8.388E+00 | 2.317E-07 |
| 2035 | 2035Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.314E-04 | 1.030E-03 | 6.355E-05 | 2.320E-05 | 6.942E-06 | 3.138E-04 | 6.642E-06 | 1.298E-04 | 2.431E+00 | 2.952E-06 |
| 2035 | 2035Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.815E-04 | 7.942E-05 | 6.556E-06 | 1.545E-05 | 2.006E-06 | 2.142E-04 | 1.844E-06 | 8.867E-05 | 1.548E+00 | 2.649E-06 |
| 2035 | 2035Light-Duty Trucks | Light-Duty Trucks | LDT2 | 9.467E-04 | 6.023E-05 | 1.094E-05 | 4.710E-06 | 1.854E-06 | 9.866E-05 | 1.704E-06 | 3.913E-05 | 4.704E-01 | 4.420E-06 |
| 2035 | 2035Passenger Cars | Passenger Cars | LDA | 7.312E-04 | 4.581E-05 | 8.274E-06 | 3.765E-06 | 1.813E-06 | 9.866E-05 | 1.667E-06 | 3.913E-05 | 3.761E-01 | 3.343E-06 |
| 2035 | 2035Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 9.950E-04 | 6.800E-05 | 1.358E-05 | 4.248E-06 | 2.112E-06 | 9.866E-05 | 1.942E-06 | 3.913E-05 | 4.241E-01 | 5.488E-06 |
| 2036 | 2036Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.634E-05 | 2.823E-02 | 5.018E-06 | 7.996E-05 | 1.801E-05 | 2.155E-04 | 1.723E-05 | 7.818E-05 | 8.381E+00 | 2.331E-07 |
| 2036 | 2036Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.301E-04 | 9.876E-04 | 6.322E-05 | 2.320E-05 | 6.811E-06 | 3.138E-04 | 6.516E-06 | 1.298E-04 | 2.431E+00 | 2.936E-06 |
| 2036 | 2036Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.761E-04 | 7.526E-05 | 6.321E-06 | 1.543E-05 | 2.017E-06 | 2.142E-04 | 1.855E-06 | 8.867E-05 | 1.546E+00 | 2.554E-06 |
| 2036 | 2036Light-Duty Trucks | Light-Duty Trucks | LDT2 | 9.171E-04 | 5.719E-05 | 1.033E-05 | 4.656E-06 | 1.747E-06 | 9.866E-05 | 1.606E-06 | 3.913E-05 | 4.651E-01 | 4.173E-06 |
| 2036 | 2036Passenger Cars | Passenger Cars | LDA | 7.056E-04 | 4.417E-05 | 7.813E-06 | 3.730E-06 | 1.716E-06 | 9.866E-05 | 1.578E-06 | 3.913E-05 | 3.726E-01 | 3.157E-06 |
| 2036 | 2036Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 9.271E-04 | 6.310E-05 | 1.222E-05 | 4.188E-06 | 1.988E-06 | 9.866E-05 | 1.828E-06 | 3.913E-05 | 4.182E-01 | 4.939E-06 |
| 2037 | 2037Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.619E-05 | 2.809E-02 | 5.068E-06 | 7.993E-05 | 1.806E-05 | 2.155E-04 | 1.728E-05 | 7.818E-05 | 8.379E+00 | 2.354E-07 |
| 2037 | 2037Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.288E-04 | 9.497E-04 | 6.290E-05 | 2.317E-05 | 6.699E-06 | 3.138E-04 | 6.409E-06 | 1.298E-04 | 2.429E+00 | 2.922E-06 |
| 2037 | 2037Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.728E-04 | 7.198E-05 | 6.153E-06 | 1.542E-05 | 2.026E-06 | 2.142E-04 | 1.863E-06 | 8.867E-05 | 1.545E+00 | 2.487E-06 |
| 2037 | 2037Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.920E-04 | 5.471E-05 | 9.824E-06 | 4.612E-06 | 1.651E-06 | 9.866E-05 | 1.517E-06 | 3.913E-05 | 4.606E-01 | 3.970E-06 |
| 2037 | 2037Passenger Cars | Passenger Cars | LDA | 6.839E-04 | 4.284E-05 | 7.436E-06 | 3.702E-06 | 1.629E-06 | 9.866E-05 | 1.497E-06 | 3.913E-05 | 3.698E-01 | 3.005E-06 |
| 2037 | 2037Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 8.747E-04 | 5.931E-05 | 1.119E-05 | 4.136E-06 | 1.881E-06 | 9.866E-05 | 1.728E-06 | 3.913E-05 | 4.131E-01 | 4.522E-06 |
| 2038 | 2038Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.614E-05 | 2.791E-02 | 5.192E-06 | 7.994E-05 | 1.826E-05 | 2.155E-04 | 1.746E-05 | 7.818E-05 | 8.379E+00 | 2.412E-07 |
| 2038 | 2038Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.278E-04 | 9.187E-04 | 6.264E-05 | 2.315E-05 | 6.605E-06 | 3.138E-04 | 6.319E-06 | 1.298E-04 | 2.427E+00 | 2.909E-06 |
| 2038 | 2038Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.695E-04 | 6.898E-05 | 5.994E-06 | 1.540E-05 | 2.035E-06 | 2.142E-04 | 1.872E-06 | 8.867E-05 | 1.543E+00 | 2.423E-06 |
| 2038 | 2038Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.708E-04 | 5.253E-05 | 9.400E-06 | 4.575E-06 | 1.565E-06 | 9.866E-05 | 1.440E-06 | 3.913E-05 | 4.570E-01 | 3.799E-06 |
| 2038 | 2038Passenger Cars | Passenger Cars | LDA | 6.660E-04 | 4.176E-05 | 7.141E-06 | 3.677E-06 | 1.550E-06 | 9.866E-05 | 1.426E-06 | 3.913E-05 | 3.674E-01 | 2.886E-06 |
| 2038 | 2038Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 8.362E-04 | 5.587E-05 | 1.034E-05 | 4.092E-06 | 1.779E-06 | 9.866E-05 | 1.636E-06 | 3.913E-05 | 4.087E-01 | 4.180E-06 |
| 2039 | 2039Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.644E-05 | 2.777E-02 | 5.386E-06 | 8.009E-05 | 1.881E-05 | 2.155E-04 | 1.799E-05 | 7.818E-05 | 8.395E+00 | 2.502E-07 |
| 2039 | 2039Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.270E-04 | 8.942E-04 | 6.243E-05 | 2.313E-05 | 6.529E-06 | 3.138E-04 | 6.247E-06 | 1.298E-04 | 2.425E+00 | 2.900E-06 |
| 2039 | 2039Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.647E-04 | 6.599E-05 | 5.810E-06 | 1.539E-05 | 2.040E-06 | 2.142E-04 | 1.876E-06 | 8.867E-05 | 1.542E+00 | 2.348E-06 |
| 2039 | 2039Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.539E-04 | 5.077E-05 | 9.074E-06 | 4.544E-06 | 1.489E-06 | 9.866E-05 | 1.369E-06 | 3.913E-05 | 4.540E-01 | 3.667E-06 |
| 2039 | 2039Passenger Cars | Passenger Cars | LDA | 6.521E-04 | 4.094E-05 | 6.932E-06 | 3.658E-06 | 1.481E-06 | 9.866E-05 | 1.362E-06 | 3.913E-05 | 3.655E-01 | 2.801E-06 |
| 2039 | 2039Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 8.055E-04 | 5.317E-05 | 9.662E-06 | 4.052E-06 | 1.684E-06 | 9.866E-05 | 1.549E-06 | 3.913E-05 | 4.047E-01 | 3.904E-06 |
| 2040 | 2040Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.693E-05 | 2.754E-02 | 5.682E-06 | 8.027E-05 | 1.957E-05 | 2.155E-04 | 1.872E-05 | 7.818E-05 | 8.414E+00 | 2.639E-07 |
| 2040 | 2040Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.264E-04 | 8.739E-04 | 6.227E-05 | 2.312E-05 | 6.465E-06 | 3.138E-04 | 6.185E-06 | 1.298E-04 | 2.423E+00 | 2.892E-06 |
| 2040 | 2040Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.621E-04 | 6.373E-05 | 5.697E-06 | 1.538E-05 | 2.045E-06 | 2.142E-04 | 1.880E-06 | 8.867E-05 | 1.541E+00 | 2.302E-06 |

lbs/VMT

1gram = 0.0022046 lbs

| Year | | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$ (Fugitive) | $PM_{2.5}$ | $PM^{2.5}$ (Fugitive) | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT |
| 2040 | 2040Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.399E-04 | 4.943E-05 | 8.799E-06 | 4.520E-06 | 1.423E-06 | 9.866E-05 | 1.308E-06 | 3.913E-05 | 4.516E-01 | 3.556E-06 |
| 2040 | 2040Passenger Cars | Passenger Cars | LDA | 6.408E-04 | 4.027E-05 | 6.769E-06 | 3.642E-06 | 1.419E-06 | 9.866E-05 | 1.305E-06 | 3.913E-05 | 3.639E-01 | 2.735E-06 |
| 2040 | 2040Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 7.810E-04 | 5.097E-05 | 9.138E-06 | 4.016E-06 | 1.601E-06 | 9.866E-05 | 1.472E-06 | 3.913E-05 | 4.012E-01 | 3.692E-06 |
| 2041 | 2041Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.759E-05 | 2.718E-02 | 6.052E-06 | 8.044E-05 | 2.047E-05 | 2.155E-04 | 1.958E-05 | 7.818E-05 | 8.431E+00 | 2.810E-07 |
| 2041 | 2041Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.259E-04 | 8.568E-04 | 6.213E-05 | 2.311E-05 | 6.412E-06 | 3.138E-04 | 6.135E-06 | 1.298E-04 | 2.422E+00 | 2.886E-06 |
| 2041 | 2041Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.617E-04 | 6.234E-05 | 5.639E-06 | 1.537E-05 | 2.050E-06 | 2.142E-04 | 1.885E-06 | 8.867E-05 | 1.540E+00 | 2.280E-06 |
| 2041 | 2041Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.286E-04 | 4.846E-05 | 8.598E-06 | 4.502E-06 | 1.371E-06 | 9.866E-05 | 1.261E-06 | 3.913E-05 | 4.498E-01 | 3.474E-06 |
| 2041 | 2041Passenger Cars | Passenger Cars | LDA | 6.317E-04 | 3.977E-05 | 6.647E-06 | 3.629E-06 | 1.371E-06 | 9.866E-05 | 1.259E-06 | 3.913E-05 | 3.627E-01 | 2.685E-06 |
| 2041 | 2041Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 7.592E-04 | 4.926E-05 | 8.732E-06 | 3.986E-06 | 1.543E-06 | 9.866E-05 | 1.420E-06 | 3.913E-05 | 3.982E-01 | 3.530E-06 |
| 2042 | 2042Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.827E-05 | 2.669E-02 | 6.406E-06 | 8.050E-05 | 2.129E-05 | 2.155E-04 | 2.037E-05 | 7.818E-05 | 8.437E+00 | 2.976E-07 |
| 2042 | 2042Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.255E-04 | 8.418E-04 | 6.202E-05 | 2.310E-05 | 6.367E-06 | 3.138E-04 | 6.091E-06 | 1.298E-04 | 2.421E+00 | 2.881E-06 |
| 2042 | 2042Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.614E-04 | 6.123E-05 | 5.594E-06 | 1.537E-05 | 2.053E-06 | 2.142E-04 | 1.887E-06 | 8.867E-05 | 1.540E+00 | 2.260E-06 |
| 2042 | 2042Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.191E-04 | 4.764E-05 | 8.430E-06 | 4.486E-06 | 1.328E-06 | 9.866E-05 | 1.221E-06 | 3.913E-05 | 4.483E-01 | 3.406E-06 |
| 2042 | 2042Passenger Cars | Passenger Cars | LDA | 6.241E-04 | 3.936E-05 | 6.547E-06 | 3.619E-06 | 1.329E-06 | 9.866E-05 | 1.222E-06 | 3.913E-05 | 3.617E-01 | 2.646E-06 |
| 2042 | 2042Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 7.386E-04 | 4.772E-05 | 8.361E-06 | 3.958E-06 | 1.491E-06 | 9.866E-05 | 1.371E-06 | 3.913E-05 | 3.955E-01 | 3.379E-06 |
| 2043 | 2043Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.939E-05 | 2.590E-02 | 6.953E-06 | 8.049E-05 | 2.238E-05 | 2.155E-04 | 2.142E-05 | 7.818E-05 | 8.437E+00 | 3.230E-07 |
| 2043 | 2043Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.252E-04 | 8.301E-04 | 6.194E-05 | 2.309E-05 | 6.331E-06 | 3.138E-04 | 6.057E-06 | 1.298E-04 | 2.420E+00 | 2.877E-06 |
| 2043 | 2043Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.612E-04 | 6.038E-05 | 5.557E-06 | 1.536E-05 | 2.055E-06 | 2.142E-04 | 1.890E-06 | 8.867E-05 | 1.539E+00 | 2.246E-06 |
| 2043 | 2043Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.114E-04 | 4.699E-05 | 8.302E-06 | 4.475E-06 | 1.293E-06 | 9.866E-05 | 1.189E-06 | 3.913E-05 | 4.471E-01 | 3.355E-06 |
| 2043 | 2043Passenger Cars | Passenger Cars | LDA | 6.179E-04 | 3.904E-05 | 6.469E-06 | 3.612E-06 | 1.294E-06 | 9.866E-05 | 1.190E-06 | 3.913E-05 | 3.609E-01 | 2.614E-06 |
| 2043 | 2043Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 7.195E-04 | 4.637E-05 | 8.042E-06 | 3.934E-06 | 1.442E-06 | 9.866E-05 | 1.326E-06 | 3.913E-05 | 3.931E-01 | 3.250E-06 |
| 2044 | 2044Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 3.150E-05 | 2.436E-02 | 7.929E-06 | 8.040E-05 | 2.414E-05 | 2.155E-04 | 2.310E-05 | 7.818E-05 | 8.427E+00 | 3.683E-07 |
| 2044 | 2044Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.251E-04 | 8.202E-04 | 6.189E-05 | 2.308E-05 | 6.300E-06 | 3.138E-04 | 6.028E-06 | 1.298E-04 | 2.419E+00 | 2.875E-06 |
| 2044 | 2044Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.611E-04 | 5.964E-05 | 5.526E-06 | 1.536E-05 | 2.057E-06 | 2.142E-04 | 1.891E-06 | 8.867E-05 | 1.539E+00 | 2.233E-06 |
| 2044 | 2044Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.054E-04 | 4.650E-05 | 8.207E-06 | 4.465E-06 | 1.265E-06 | 9.866E-05 | 1.163E-06 | 3.913E-05 | 4.462E-01 | 3.316E-06 |
| 2044 | 2044Passenger Cars | Passenger Cars | LDA | 6.129E-04 | 3.880E-05 | 6.409E-06 | 3.605E-06 | 1.266E-06 | 9.866E-05 | 1.164E-06 | 3.913E-05 | 3.603E-01 | 2.590E-06 |
| 2044 | 2044Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 7.043E-04 | 4.545E-05 | 7.827E-06 | 3.914E-06 | 1.401E-06 | 9.866E-05 | 1.288E-06 | 3.913E-05 | 3.911E-01 | 3.163E-06 |
| 2045 | 2045Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 3.435E-05 | 2.258E-02 | 9.205E-06 | 8.029E-05 | 2.611E-05 | 2.155E-04 | 2.498E-05 | 7.818E-05 | 8.415E+00 | 4.275E-07 |
| 2045 | 2045Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.250E-04 | 8.122E-04 | 6.185E-05 | 2.308E-05 | 6.275E-06 | 3.138E-04 | 6.004E-06 | 1.298E-04 | 2.419E+00 | 2.873E-06 |
| 2045 | 2045Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.609E-04 | 5.908E-05 | 5.502E-06 | 1.536E-05 | 2.059E-06 | 2.142E-04 | 1.893E-06 | 8.867E-05 | 1.539E+00 | 2.223E-06 |
| 2045 | 2045Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.003E-04 | 4.609E-05 | 8.134E-06 | 4.457E-06 | 1.242E-06 | 9.866E-05 | 1.142E-06 | 3.913E-05 | 4.454E-01 | 3.287E-06 |
| 2045 | 2045Passenger Cars | Passenger Cars | LDA | 6.087E-04 | 3.860E-05 | 6.361E-06 | 3.600E-06 | 1.243E-06 | 9.866E-05 | 1.143E-06 | 3.913E-05 | 3.598E-01 | 2.570E-06 |
| 2045 | 2045Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 6.914E-04 | 4.476E-05 | 7.674E-06 | 3.895E-06 | 1.364E-06 | 9.866E-05 | 1.255E-06 | 3.913E-05 | 3.892E-01 | 3.101E-06 |
| 2046 | 2046Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 3.845E-05 | 2.049E-02 | 1.097E-05 | 8.015E-05 | 2.831E-05 | 2.155E-04 | 2.708E-05 | 7.818E-05 | 8.401E+00 | 5.097E-07 |
| 2046 | 2046Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.250E-04 | 8.057E-04 | 6.183E-05 | 2.307E-05 | 6.254E-06 | 3.138E-04 | 5.984E-06 | 1.298E-04 | 2.418E+00 | 2.872E-06 |
| 2046 | 2046Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.608E-04 | 5.858E-05 | 5.481E-06 | 1.536E-05 | 2.060E-06 | 2.142E-04 | 1.894E-06 | 8.867E-05 | 1.538E+00 | 2.215E-06 |
| 2046 | 2046Light-Duty Trucks | Light-Duty Trucks | LDT2 | 7.965E-04 | 4.577E-05 | 8.079E-06 | 4.451E-06 | 1.225E-06 | 9.866E-05 | 1.126E-06 | 3.913E-05 | 4.448E-01 | 3.265E-06 |
| 2046 | 2046Passenger Cars | Passenger Cars | LDA | 6.054E-04 | 3.844E-05 | 6.323E-06 | 3.596E-06 | 1.225E-06 | 9.866E-05 | 1.127E-06 | 3.913E-05 | 3.594E-01 | 2.555E-06 |
| 2046 | 2046Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 6.797E-04 | 4.412E-05 | 7.534E-06 | 3.879E-06 | 1.332E-06 | 9.866E-05 | 1.225E-06 | 3.913E-05 | 3.876E-01 | 3.044E-06 |

**Chiquita Canyon Landfill EIR**

Conversion gram/lb: 1 gram = 0.002205 lb

**EMFAC2014 Idling Emission Rates for HHDT**

| | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{2.5}$ | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|
| | lb/hr | lb/hr | lb/hr | lb/hr | lb/hr | lb/hr | lb/hr | lb/hr |
| 2017 | 0.0165 | 0.2316 | 0.0044 | 0.0001 | 0.0007 | 0.0007 | 15.2537 | 0.0002 |
| 2018 | 0.0165 | 0.2323 | 0.0043 | 0.0001 | 0.0007 | 0.0006 | 15.2719 | 0.0002 |
| 2019 | 0.0164 | 0.2336 | 0.0042 | 0.0001 | 0.0007 | 0.0006 | 15.2969 | 0.0002 |
| 2020 | 0.0163 | 0.2349 | 0.0042 | 0.0001 | 0.0006 | 0.0006 | 15.3222 | 0.0002 |
| 2021 | 0.0161 | 0.2367 | 0.0040 | 0.0001 | 0.0006 | 0.0006 | 15.3553 | 0.0002 |
| 2022 | 0.0161 | 0.2374 | 0.0040 | 0.0001 | 0.0006 | 0.0006 | 15.3713 | 0.0002 |
| 2023 | 0.0159 | 0.2387 | 0.0039 | 0.0001 | 0.0006 | 0.0005 | 15.3959 | 0.0002 |
| 2024 | 0.0159 | 0.2399 | 0.0038 | 0.0001 | 0.0006 | 0.0005 | 15.4188 | 0.0002 |
| 2025 | 0.0158 | 0.2410 | 0.0037 | 0.0001 | 0.0005 | 0.0005 | 15.4384 | 0.0002 |
| 2026 | 0.0157 | 0.2421 | 0.0037 | 0.0001 | 0.0005 | 0.0005 | 15.4584 | 0.0002 |
| 2027 | 0.0156 | 0.2428 | 0.0036 | 0.0001 | 0.0005 | 0.0005 | 15.4706 | 0.0002 |
| 2028 | 0.0156 | 0.2434 | 0.0036 | 0.0001 | 0.0005 | 0.0005 | 15.4817 | 0.0002 |
| 2029 | 0.0155 | 0.2448 | 0.0035 | 0.0001 | 0.0005 | 0.0005 | 15.5032 | 0.0002 |
| 2030 | 0.0154 | 0.2456 | 0.0034 | 0.0001 | 0.0005 | 0.0004 | 15.5164 | 0.0002 |
| 2031 | 0.0154 | 0.2464 | 0.0034 | 0.0001 | 0.0005 | 0.0004 | 15.5294 | 0.0002 |
| 2032 | 0.0153 | 0.2471 | 0.0033 | 0.0001 | 0.0004 | 0.0004 | 15.5427 | 0.0002 |
| 2033 | 0.0152 | 0.2479 | 0.0033 | 0.0001 | 0.0004 | 0.0004 | 15.5575 | 0.0002 |
| 2034 | 0.0151 | 0.2492 | 0.0032 | 0.0001 | 0.0004 | 0.0004 | 15.5827 | 0.0001 |
| 2035 | 0.0151 | 0.2501 | 0.0032 | 0.0001 | 0.0004 | 0.0004 | 15.6011 | 0.0001 |
| 2036 | 0.0150 | 0.2508 | 0.0031 | 0.0001 | 0.0004 | 0.0004 | 15.6171 | 0.0001 |
| 2037 | 0.0149 | 0.2515 | 0.0031 | 0.0001 | 0.0004 | 0.0004 | 15.6355 | 0.0001 |
| 2038 | 0.0148 | 0.2524 | 0.0030 | 0.0001 | 0.0004 | 0.0004 | 15.6623 | 0.0001 |
| 2039 | 0.0148 | 0.2532 | 0.0030 | 0.0001 | 0.0004 | 0.0004 | 15.6907 | 0.0001 |
| 2040 | 0.0146 | 0.2540 | 0.0029 | 0.0002 | 0.0004 | 0.0003 | 15.7271 | 0.0001 |
| 2041 | 0.0145 | 0.2547 | 0.0029 | 0.0002 | 0.0003 | 0.0003 | 15.7650 | 0.0001 |
| 2042 | 0.0145 | 0.2549 | 0.0028 | 0.0002 | 0.0003 | 0.0003 | 15.7900 | 0.0001 |
| 2043 | 0.0145 | 0.2545 | 0.0028 | 0.0002 | 0.0003 | 0.0003 | 15.8145 | 0.0001 |
| 2044 | 0.0144 | 0.2538 | 0.0028 | 0.0002 | 0.0003 | 0.0003 | 15.8550 | 0.0001 |
| 2045 | 0.0143 | 0.2527 | 0.0028 | 0.0002 | 0.0003 | 0.0003 | 15.9028 | 0.0001 |
| 2046 | 0.0143 | 0.2508 | 0.0028 | 0.0002 | 0.0003 | 0.0003 | 15.9613 | 0.0001 |

Source: EMFAC 2014: 2011 Vehicle Classes, T7 SWCV (Solid Waste Collection Truck); Diesel Fuel; Area: Los Angeles (SC); Annual Average Emission Rates; Temperature: 68F; Humidity: 55%; Speed: 0mph (idle).

| | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{2.5}$ | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|
| | g/hr | g/hr | g/hr | g/hr | g/hr | g/hr | g/hr | g/hr |
| _2017 | 7.49 | 105.01 | 1.99 | 0.07 | 0.31 | 0.30 | 6917.79 | 0.09 |
| _2018 | 7.46 | 105.37 | 1.96 | 0.07 | 0.31 | 0.29 | 6926.03 | 0.09 |
| _2019 | 7.42 | 105.93 | 1.92 | 0.07 | 0.30 | 0.28 | 6937.38 | 0.09 |
| _2020 | 7.37 | 106.51 | 1.88 | 0.07 | 0.29 | 0.28 | 6948.86 | 0.09 |
| _2021 | 7.31 | 107.33 | 1.83 | 0.07 | 0.28 | 0.26 | 6963.86 | 0.08 |
| _2022 | 7.28 | 107.65 | 1.81 | 0.07 | 0.27 | 0.26 | 6971.10 | 0.08 |
| _2023 | 7.23 | 108.24 | 1.77 | 0.07 | 0.26 | 0.25 | 6982.28 | 0.08 |
| _2024 | 7.19 | 108.80 | 1.73 | 0.07 | 0.25 | 0.24 | 6992.66 | 0.08 |
| _2025 | 7.15 | 109.28 | 1.70 | 0.07 | 0.24 | 0.23 | 7001.54 | 0.08 |
| _2026 | 7.11 | 109.79 | 1.66 | 0.07 | 0.23 | 0.22 | 7010.62 | 0.08 |
| _2027 | 7.09 | 110.10 | 1.64 | 0.07 | 0.23 | 0.22 | 7016.15 | 0.08 |
| _2028 | 7.07 | 110.40 | 1.62 | 0.07 | 0.22 | 0.21 | 7021.17 | 0.08 |
| _2029 | 7.02 | 111.01 | 1.58 | 0.07 | 0.21 | 0.21 | 7030.91 | 0.07 |
| _2030 | 6.99 | 111.39 | 1.55 | 0.07 | 0.21 | 0.20 | 7036.92 | 0.07 |
| _2031 | 6.97 | 111.75 | 1.53 | 0.07 | 0.20 | 0.20 | 7042.82 | 0.07 |
| _2032 | 6.94 | 112.07 | 1.51 | 0.07 | 0.20 | 0.19 | 7048.87 | 0.07 |
| _2033 | 6.91 | 112.43 | 1.49 | 0.07 | 0.20 | 0.19 | 7055.57 | 0.07 |
| _2034 | 6.87 | 113.00 | 1.46 | 0.07 | 0.19 | 0.18 | 7067.00 | 0.07 |
| _2035 | 6.83 | 113.42 | 1.44 | 0.07 | 0.19 | 0.18 | 7075.35 | 0.07 |
| _2036 | 6.80 | 113.73 | 1.42 | 0.07 | 0.18 | 0.17 | 7082.59 | 0.07 |
| _2037 | 6.77 | 114.07 | 1.40 | 0.07 | 0.18 | 0.17 | 7090.93 | 0.07 |
| _2038 | 6.73 | 114.48 | 1.38 | 0.07 | 0.17 | 0.17 | 7103.08 | 0.06 |
| _2039 | 6.69 | 114.82 | 1.36 | 0.07 | 0.17 | 0.16 | 7115.95 | 0.06 |
| _2040 | 6.64 | 115.20 | 1.33 | 0.07 | 0.16 | 0.15 | 7132.46 | 0.06 |
| _2041 | 6.59 | 115.52 | 1.30 | 0.07 | 0.16 | 0.15 | 7149.65 | 0.06 |
| _2042 | 6.57 | 115.59 | 1.29 | 0.07 | 0.15 | 0.15 | 7160.98 | 0.06 |
| _2043 | 6.55 | 115.43 | 1.28 | 0.07 | 0.15 | 0.14 | 7172.11 | 0.06 |
| _2044 | 6.53 | 115.10 | 1.27 | 0.07 | 0.14 | 0.14 | 7190.46 | 0.06 |
| _2045 | 6.51 | 114.58 | 1.26 | 0.07 | 0.14 | 0.13 | 7212.17 | 0.06 |
| _2046 | 6.49 | 113.74 | 1.26 | 0.07 | 0.13 | 0.12 | 7238.70 | 0.06 |

## Chiquita Canyon Landfill EIR

**Fugitive $PM_{10}$ Emission Factors for Roads**

**Assumptions:**

Assume $PM_{10}$ control efficiencies are the same for $PM_{2.5}$

**Fugitive Emissions Used in Analysis** [1]

**Trucks:**

| | Uncontrolled / Unmitigated Fugitive Emission Factors (lb/VMT) | | | | Mitigated Fugitive Emission Factors (lb/VMT) | | | |
|---|---|---|---|---|---|---|---|---|
| | Onsite $PM_{10}$ | Offsite $PM_{10}$ | Onsite $PM_{2.5}$ | Offsite $PM_{2.5}$ | Onsite $PM_{10}$ | Offsite $PM_{10}$ | Onsite $PM_{2.5}$ | Offsite $PM_{2.5}$ |
| **Paved Roads** | 2.13E-01 | 1.21E-03 | 5.23E-02 | 2.98E-04 | 2.13E-01 | 1.21E-03 | 5.23E-02 | 2.98E-04 |
| **Unpaved Roads** | 1.05 | NA | 0.11 | NA | 4.74E-01 | NA | 4.74E-02 | NA |

**Mitigation Measures:**

| Measure | Control Efficiency | Applicable Source | Reference |
|---|---|---|---|
| Watering 2x daily, use of gravel cover on all unpaved roads, paving as much as possible, and limiting the maximum vehicle speed to 15 miles per hour. | 55% | Unpaved Roads | South Coast Air Quality Management District (SCAQMD). 2013c. SCAQMD CEQA Handbook Table XI-D: Unpaved Roads Rev 4/2007. Available online at: http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html. |

## Chiquita Canyon Landfill EIR

**Fugitive $PM_{10}$ Emission Factors for Roads**

### Emission Factor Calculations

**Travel On Paved Roads** [2]

$EF^{(1)} = k\ [(sL)^{0.91}]\ [(W)^{1.02}]\ [1-P/4N]$ lb/vehicle mile traveled (vmt)

| *Parameter* | *Description* | *Value* | | |
|---|---|---|---|---|
| k | Constant used to calculate $PM_{10}$ | 0.0022 | | |
| k | Constant used to calculate $PM_{2.5}$ | 0.00054 | | |
| P | Number of Days > 0.1 in. Precipitation (Annual Ave. for Los Angeles - South Coast)[4]: | 33 | | |
| N | Number of Days in Averaging Period: | 365 | | |
| | | Onsite SL (Paved Roads) | Offsite SL (Paved Roads) | |
| SL (Paved Roads) | Silt Loading (g/m2)[5] | 7.4 | | 0.2 |

**Vehicle Travel on Unpaved Surfaces at Industrial Sites**[3]

$EF^{(1)} = k\ [(s/12)^{a}]\ [(W/3)^{b}]\ [(365-P)/365]$ lb/vehicle mile traveled (vmt)

| *Parameter* | *Description* | *Value* | | |
|---|---|---|---|---|
| s | Silt Loading (g/m2)[6] | 4.0 | | |
| P | Number of Days > 0.1 in. Precipitation (Annual Ave. for Los Angeles - South Coast)[4]: | 33 | | |
| | | Constants: $PM_{10}$ | Constants: $PM_{2.5}$ | |
| k | | 1.5 | 0.15 | |
| a | | 0.9 | 0.9 | |
| b | | 0.45 | 0.45 | |

| Vehicle Type | W: Mean Vehicle Weight (tons) | Vehicle Fleet Mix (Percent) [7] | Fugitive Emission Factors on Paved Roads (lb/VMT) | | | |
|---|---|---|---|---|---|---|
| | | | Onsite $PM_{10}$ | Offsite $PM_{10}$ | Onsite $PM_{2.5}$ | Offsite $PM_{2.5}$ |
| LDA | 0.94 | 0.08 | 1.24E-02 | 4.65E-04 | 3.05E-03 | 1.14E-04 |
| HHDT | 23.25 | 0.47 | 3.29E-01 | 1.23E-02 | 8.08E-02 | 3.02E-03 |
| MHDT | 11.75 | 0.33 | 1.64E-01 | 6.14E-03 | 4.03E-02 | 1.51E-03 |
| LHDT2 | 2.38 | 0.11 | 3.21E-02 | 1.20E-03 | 7.88E-03 | 2.95E-04 |
| LDT2 | 6.00 | 0.00 | 8.26E-02 | 3.09E-03 | 2.03E-02 | 7.59E-04 |
| LDT1 | 4.63 | 0.01 | 6.34E-02 | 2.37E-03 | 1.56E-02 | 5.82E-04 |
| Average On-Site | 15.18 | - | 2.13E-01 | - | 5.23E-02 | - |
| Average Off-Site [8] | 2.40 | - | - | 1.21E-03 | - | 0.000298001 |

| Fugitive Emission Factors on Unpaved Roads (lb/VMT) | |
|---|---|
| Onsite $PM_{10}$ | Onsite $PM_{2.5}$ |
| 0.30 | 0.03 |
| 1.28 | 0.13 |
| 0.94 | 0.09 |
| 0.46 | 0.05 |
| 0.69 | 0.07 |
| 0.62 | 0.06 |
| 1.05 | 0.11 |

## Chiquita Canyon Landfill EIR

**Fugitive $PM_{10}$ Emission Factors for Roads**

| | Vehicle Weight Class (lbs)[9] | | | |
|---|---|---|---|---|
| Vehicle Class | Low | High | Median Weight (lbs) | Median Weight (tons) |
| LDA | 0 | 3750 | 1875 | 0.94 |
| HHDT | 33001 | 60000 | 46500.5 | 23.25 |
| MHDT | 14001 | 33000 | 23500.5 | 11.75 |
| LDT2 | 3751 | 5750 | 4750.5 | 2.38 |
| LHD2 | 10001 | 14000 | 12000.5 | 6.00 |
| LHD1 | 8501 | 10000 | 9250.5 | 4.63 |
| LDT1 | 0 | 3750 | 1875 | 0.9375 |

| Offsite SL Loading: | | | | |
|---|---|---|---|---|
| ADT: | < 500 | 500 - 5,000 | 5,000 - 10,000 | >10,000 |
| SL Loading (g/m2)[5]: | 0.6 | 0.2 | 0.06 | .03 / 0.015 limited |

[1]Emissions are based on average weight of vehicles on the roadway and are not calculated individually as per AP42 13.2.1. Emission factor calculations are not intended to be used to calculate a separate emission factor for each vehicle weight class, but only one EF to represent the "fleet" average weight of all vehicles traveling the road.

[2]Emission factors were calculated using EPA AP-42 13.2.1, Equation 2 to estimate emission factor on an annual basis. The hourly emission calculation was not used because hourly precipitation data are not available and the predictive analysis is more appropriate for this application. The daily emissions and hourly emissions are scaled based on the annual emission factors and operating scenario.

[3]Emission factors were calculated using EPA AP-42 13.2.2, Equations 1a and 2.

[4]Average Los Angeles - South Coast precipitation conditions were taken from CalEEMod Appendix D, Table 1.1.

[5]Silt content was obtained from EPA AP42 Table 13.2.1-3. The value for municipal solid waste landfill was used for onsite. The ubiquitous baseline value for road with 500 < ADT , 5,000 was used for offsite, since the project will generate at least 1,500 ADT.

[6]Silt content was obtained from SCAQMD CEQA Handbook, Table A9-9 in order to account for the gravel roads.

[7]Based on the existing fleet mix and the addition of vehicles from the proposed project. Calculated based on peak vehicle totals in Table 2-4 of the Project Description dated 10/03/2016 and vehicle breakdown from CCL Ton Load Reports for 2011.

[8] Average weight of all vehicles traveling on public roads taken from Appendix A of CalEEMod Use Guide.

[9]Vehicle Weight Class taken from EMFAC2011 LDV User Guide Table 3.1 for LDV vehicles and EMFAC2007 User Guide Table 1 for HD vehicles. Assume that passenger cars have the same median weight as light duty trucks (LDT1).

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions

**Year: 2017**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 35.66 | 59.10 | 9.09 | 1.10E-01 | 2.77E+00 | 2.55E+00 | 17.48 | 3.63 | N/A | 220.85 | 396.48 | 59.67 | 0.73 | 17.87 | 16.44 | 174.75 | 36.35 | N/A | 20,893.04 | 36,334.09 | 5,536.03 | 67.48 | 1,647.81 | 1,515.99 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 1.61 | 0.13 | 0.03 | 4.62E-03 | 2.70E-03 | 2.48E-03 | 1.05 | 0.27 | N/A | 64.34 | 5.35 | 1.37 | 0.18 | 0.11 | 0.10 | 42.01 | 10.79 | N/A | 7,720.68 | 642.19 | 163.80 | 22.18 | 12.94 | 11.91 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.01 | 0.00 | 0.00 | 1.36E-05 | 1.44E-05 | 1.33E-05 | 0.85 | 0.10 | N/A | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.40 | 0.39 | N/A | 5.12 | 0.47 | 0.13 | 0.01 | 0.01 | 0.01 | 407.67 | 46.83 | N/A |
| Yearly Construction Total | 37.27 | 59.24 | 9.12 | 1.14E-01 | 2.77E+00 | 2.55E+00 | 19.37 | 4.00 | N/A | 285.24 | 401.84 | 61.04 | 0.91 | 17.97 | 16.54 | 220.15 | 47.53 | N/A | 28,618.85 | 36,976.75 | 5,699.96 | 89.67 | 1,660.76 | 1,527.90 | 15,345.80 | 3,400.04 | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 6.33 | 0.87 | 0.16 | 0.02 | 0.02 | 0.02 | 17.25 | 3.59 | N/A | 1,973.88 | 272.49 | 50.29 | 7.44 | 6.51 | 6.51 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.19 | 10.07 | 0.02 | 2.62E-02 | 1.77E-02 | 1.69E-02 | 0.61 | 0.16 | N/A | 0.93 | 100.64 | 0.19 | 0.26 | 0.18 | 0.17 | 5.42 | 1.44 | N/A | 291.21 | 31,399.05 | 59.05 | 80.90 | 54.75 | 52.37 | 1,691.85 | 450.09 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.02 | 0.64 | 0.00 | 1.53E-03 | 2.17E-03 | 2.08E-03 | 6.36 | 1.34 | N/A | 0.16 | 6.44 | 0.04 | 0.02 | 0.02 | 0.02 | 63.60 | 13.42 | N/A | 48.73 | 2,009.65 | 13.43 | 4.76 | 6.78 | 6.49 | 19,844.41 | 4,185.70 | N/A |
| Yearly Operational Total | 6.57 | 11.51 | 0.18 | 5.03E-02 | 4.05E-02 | 3.96E-02 | 8.69 | 1.86 | N/A | 7.42 | 107.95 | 0.39 | 0.30 | 0.22 | 0.21 | 86.28 | 18.45 | N/A | 2,313.82 | 33,681.20 | 122.77 | 93.10 | 68.04 | 65.37 | 26,431.54 | 5,654.00 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Compost Process Emissions | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Compost Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 0.00 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Yearly Total** | **43.85** | **70.75** | **9.31** | **0.16** | **2.81** | **2.59** | **28.07** | **5.86** | **0.00** | **292.65** | **509.79** | **61.43** | **1.21** | **18.19** | **16.74** | **306.43** | **65.97** | **0.00** | **30,932.67** | **70,657.95** | **5,822.72** | **182.77** | **1,728.80** | **1,593.27** | **41,777.35** | **9,054.04** | **0.00** |

**Year: 2018**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 14.07 | 21.87 | 3.59 | 4.49E-02 | 9.51E-01 | 8.75E-01 | 7.27 | 1.51 | N/A | 109.46 | 190.37 | 30.90 | 0.39 | 7.42 | 6.83 | 72.72 | 15.13 | N/A | 7,249.56 | 11,327.96 | 1,739.01 | 23.60 | 479.27 | 440.93 | 2,778.38 | 577.90 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.72 | 0.06 | 0.01 | 2.25E-03 | 1.34E-03 | 1.23E-03 | 0.53 | 0.13 | N/A | 14.36 | 1.18 | 0.27 | 0.04 | 0.03 | 0.02 | 10.50 | 2.70 | N/A | 1,723.72 | 141.17 | 32.95 | 5.40 | 3.21 | 2.95 | 1,260.22 | 323.65 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.02 | 0.00 | 0.00 | 2.65E-05 | 2.63E-05 | 2.42E-05 | 1.70 | 0.20 | N/A | 0.15 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 13.59 | 1.56 | N/A | 17.81 | 1.62 | 0.38 | 0.03 | 0.03 | 0.02 | 1,630.67 | 187.30 | N/A |
| Yearly Construction Total | 14.81 | 21.93 | 3.60 | 4.72E-02 | 9.52E-01 | 8.76E-01 | 9.50 | 1.84 | N/A | 123.97 | 191.56 | 31.18 | 0.44 | 7.45 | 6.85 | 96.82 | 19.38 | N/A | 8,991.09 | 11,470.75 | 1,772.35 | 29.02 | 482.51 | 443.91 | 5,669.27 | 1,088.85 | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 12.65 | 1.75 | 0.32 | 0.05 | 0.04 | 0.04 | 17.25 | 3.59 | N/A | 3,947.76 | 544.98 | 100.57 | 14.88 | 13.02 | 13.02 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.33 | 20.14 | 0.03 | 5.30E-02 | 3.11E-02 | 2.98E-02 | 1.22 | 0.32 | N/A | 1.60 | 201.29 | 0.31 | 0.52 | 0.31 | 0.29 | 10.93 | 2.91 | N/A | 500.60 | 62,802.13 | 97.86 | 163.80 | 96.09 | 91.92 | 3,410.67 | 907.05 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.03 | 1.27 | 0.01 | 3.08E-03 | 3.63E-03 | 3.47E-03 | 12.72 | 2.68 | N/A | 0.28 | 12.70 | 0.08 | 0.03 | 0.04 | 0.03 | 127.21 | 26.83 | N/A | 86.58 | 3,963.10 | 23.52 | 9.60 | 11.32 | 10.83 | 39,688.69 | 8,371.32 | N/A |
| Yearly Operational Total | 6.73 | 22.21 | 0.20 | 7.87E-02 | 5.53E-02 | 5.38E-02 | 15.66 | 3.36 | N/A | 14.54 | 215.74 | 0.71 | 0.60 | 0.39 | 0.37 | 155.39 | 33.33 | N/A | 4,534.94 | 67,310.22 | 221.95 | 188.28 | 120.43 | 115.78 | 47,994.63 | 10,296.59 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Compost Process Emissions | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Compost Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Yearly Total** | **21.54** | **44.14** | **3.80** | **0.13** | **1.01** | **0.93** | **25.16** | **5.21** | **0.00** | **138.51** | **407.30** | **31.89** | **1.04** | **7.83** | **7.22** | **252.20** | **52.71** | **0.00** | **13,526.03** | **78,780.97** | **1,994.30** | **217.30** | **602.94** | **559.68** | **53,663.90** | **11,385.44** | **0.00** |

**Year: 2019**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 18.98 | 2.62 | 0.48 | 0.07 | 0.06 | 0.06 | 17.25 | 3.59 | N/A | 5,921.64 | 817.47 | 150.86 | 22.32 | 19.53 | 19.53 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.45 | 29.69 | 0.05 | 7.91E-02 | 4.29E-02 | 4.10E-02 | 1.82 | 0.48 | N/A | 2.19 | 296.71 | 0.42 | 0.78 | 0.42 | 0.41 | 16.35 | 4.35 | N/A | 684.67 | 92,572.50 | 131.58 | 244.38 | 132.37 | 126.66 | 5,102.52 | 1,357.14 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.04 | 1.86 | 0.01 | 4.60E-03 | 4.87E-03 | 4.66E-03 | 19.08 | 4.02 | N/A | 0.39 | 18.63 | 0.10 | 0.05 | 0.05 | 0.05 | 190.81 | 40.25 | N/A | 122.00 | 5,811.64 | 32.63 | 14.35 | 15.18 | 14.53 | 59,533.10 | 12,557.01 | N/A |
| Yearly Operational Total | 6.86 | 32.34 | 0.21 | 1.06E-01 | 6.83E-02 | 6.63E-02 | 22.63 | 4.87 | N/A | 21.57 | 317.95 | 1.01 | 0.90 | 0.54 | 0.52 | 224.41 | 48.18 | N/A | 6,728.30 | 99,201.62 | 315.07 | 281.06 | 167.08 | 160.71 | 69,530.90 | 14,932.37 | N/A |
| On-Site Compost Facility Construction Sources | 11.18 | 13.95 | 1.29 | 0.02 | 0.68 | 0.63 | 0.56 | 0.31 | N/A | 89.46 | 111.64 | 10.34 | 0.12 | 5.46 | 5.03 | 4.52 | 2.48 | N/A | 11,090.94 | 13,526.21 | 1,262.45 | 14.76 | 673.98 | 620.06 | 896.12 | 469.16 | N/A |
| Off-Site Compost Facility Construction Sources | 0.43 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 | N/A | 3.42 | 0.27 | 0.18 | 0.01 | 0.01 | 0.01 | 0.27 | 0.07 | N/A | 443.88 | 35.44 | 23.62 | 1.30 | 0.78 | 0.72 | 103.55 | 27.47 | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 17.53 | 14.66 | 23.26 | 3.16E-02 | 7.05E-01 | 6.50E-01 | 2.22 | 1.08 | 3.08 | 108.28 | 113.66 | 533.92 | 0.17 | 5.52 | 5.09 | 9.01 | 4.52 | 74.00 | 16,339.62 | 14,107.65 | 164,586.87 | 28.23 | 691.60 | 637.62 | 2,316.44 | 1,110.84 | 23,088.00 |
| **Yearly Total** | **24.39** | **47.01** | **23.47** | **0.14** | **0.77** | **0.72** | **24.85** | **5.94** | **3.08** | **129.85** | **431.61** | **534.93** | **1.07** | **6.06** | **5.60** | **233.42** | **52.71** | **74.00** | **23,067.93** | **113,309.26** | **164,901.95** | **309.29** | **858.68** | **798.33** | **71,847.33** | **16,043.21** | **23,088.00** |

**Year: 2020**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 25.31 | 3.49 | 0.64 | 0.10 | 0.08 | 0.08 | 17.25 | 3.59 | N/A | 7,895.52 | 1,089.97 | 201.14 | 29.76 | 26.04 | 26.04 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.56 | 39.15 | 0.05 | 0.11 | 0.05 | 0.05 | 2.46 | 0.19 | N/A | 2.98 | 635.57 | 0.41 | 1.82 | 0.53 | 0.50 | 21.92 | 5.83 | N/A | 783.05 | 122,070.00 | 136.22 | 327.10 | 150.77 | 144.23 | 6,837.72 | 1,818.31 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.05 | 2.43 | 0.01 | 0.01 | 0.01 | 0.00 | 25.44 | 5.37 | N/A | 0.45 | 24.27 | 0.12 | 0.06 | 0.05 | 0.05 | 254.41 | 53.66 | N/A | 141.05 | 7,571.43 | 36.76 | 19.17 | 16.08 | 15.39 | 79,377.37 | 16,742.64 | N/A |
| Yearly Operational Total | 6.98 | 42.37 | 0.22 | 1.35E-01 | 7.47E-02 | 7.24E-02 | 29.63 | 5.92 | N/A | 28.74 | 663.33 | 1.17 | 1.98 | 0.66 | 0.64 | 293.58 | 63.08 | N/A | 8,819.61 | 130,731.40 | 374.12 | 376.03 | 192.89 | 185.65 | 91,110.37 | 19,579.16 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **12.90** | **43.04** | **22.16** | **0.15** | **0.10** | **0.09** | **31.25** | **6.67** | **3.08** | **44.14** | **665.08** | **524.57** | **2.01** | **0.71** | **0.69** | **297.80** | **65.05** | **74.00** | **13,624.41** | **131,277.40** | **163,674.92** | **388.20** | **209.74** | **202.50** | **92,427.13** | **20,193.36** | **23,088.00** |

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions
**Year: 2021**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 1.13 | 0.09 | 0.02 | 4.13E-03 | 2.59E-03 | 2.38E-03 | 1.05 | 0.27 | N/A | 45.13 | 3.44 | 0.73 | 0.17 | 0.10 | 0.10 | 42.01 | 10.79 | N/A | 5,415.42 | 413.31 | 87.67 | 19.80 | 12.44 | 11.43 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.01 | 0.00 | 0.00 | 1.23E-05 | 1.10E-05 | 1.01E-05 | 0.85 | 0.10 | N/A | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.40 | 0.39 | N/A | 3.32 | 0.29 | 0.06 | 0.01 | 0.01 | 0.00 | 407.67 | 46.83 | N/A |
| Yearly Construction Total | 30.48 | 3.47 | 0.80 | 1.14E-01 | 1.06E-01 | 1.06E-01 | 19.37 | 4.00 | N/A | 322.64 | 35.85 | 8.17 | 1.21 | 1.10 | 1.09 | 220.15 | 47.53 | N/A | 23,224.69 | 2,514.37 | 569.72 | 87.29 | 76.66 | 75.65 | 15,345.80 | 3,400.04 | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 31.63 | 4.37 | 0.81 | 0.12 | 0.10 | 0.10 | 17.25 | 3.59 | N/A | 9,869.40 | 1,362.46 | 251.43 | 37.21 | 32.54 | 32.54 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.62 | 47.97 | 0.04 | 1.32E-01 | 4.60E-02 | 4.39E-02 | 3.07 | 0.81 | N/A | 2.55 | 479.42 | 0.37 | 1.31 | 0.45 | 0.43 | 27.34 | 7.27 | N/A | 794.43 | 149,578.14 | 114.89 | 407.41 | 140.86 | 134.57 | 8,529.57 | 2,268.39 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.05 | 2.95 | 0.01 | 7.66E-03 | 4.03E-03 | 3.85E-03 | 31.80 | 6.71 | N/A | 0.48 | 29.47 | 0.12 | 0.08 | 0.04 | 0.04 | 318.02 | 67.08 | N/A | 149.69 | 9,193.74 | 36.38 | 23.90 | 12.57 | 12.02 | 99,221.78 | 20,928.33 | N/A |
| Yearly Operational Total | 7.03 | 51.71 | 0.21 | 1.62E-01 | 7.06E-02 | 6.83E-02 | 36.60 | 7.88 | N/A | 34.66 | 513.25 | 1.29 | 1.50 | 0.60 | 0.57 | 362.61 | 77.94 | N/A | 10,813.51 | 160,134.33 | 402.70 | 468.52 | 185.98 | 179.13 | 112,646.63 | 24,214.95 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **43.44** | **55.85** | **22.95** | **0.29** | **0.20** | **0.20** | **57.59** | **12.64** | **3.08** | **372.70** | **550.86** | **532.86** | **2.75** | **1.75** | **1.71** | **586.98** | **127.43** | **74.00** | **38,843.01** | **163,194.71** | **164,273.21** | **567.98** | **279.49** | **271.63** | **129,309.20** | **28,229.19** | **23,088.00** |

**Year: 2022**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 37.96 | 5.24 | 0.97 | 0.14 | 0.13 | 0.13 | 17.25 | 3.59 | N/A | 11,843.28 | 1,634.95 | 301.71 | 44.65 | 39.05 | 39.05 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.70 | 57.25 | 0.05 | 0.16 | 0.05 | 0.05 | 3.68 | 0.98 | N/A | 2.97 | 572.20 | 0.43 | 1.57 | 0.53 | 0.51 | 32.85 | 8.74 | N/A | 925.86 | 178,527.26 | 133.72 | 489.77 | 165.34 | 158.15 | 10,248.38 | 2,725.35 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.50 | 0.01 | 0.01 | 0.00 | 0.00 | 38.16 | 8.05 | N/A | 0.57 | 35.03 | 0.14 | 0.09 | 0.05 | 0.04 | 381.62 | 80.49 | N/A | 178.32 | 10,928.61 | 42.67 | 28.71 | 14.50 | 13.87 | 119,066.06 | 25,113.95 | N/A |
| Yearly Operational Total | 7.13 | 61.55 | 0.22 | 1.90E-01 | 7.92E-02 | 7.66E-02 | 43.57 | 9.38 | N/A | 41.50 | 612.47 | 1.53 | 1.80 | 0.70 | 0.68 | 431.72 | 92.82 | N/A | 12,947.46 | 191,090.81 | 478.10 | 563.13 | 218.89 | 211.08 | 134,209.72 | 28,857.53 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **13.05** | **62.22** | **22.17** | **0.21** | **0.10** | **0.10** | **45.19** | **10.14** | **3.08** | **56.90** | **614.22** | **524.93** | **1.84** | **0.76** | **0.73** | **435.94** | **94.79** | **74.00** | **17,752.26** | **191,636.81** | **163,778.90** | **575.29** | **235.73** | **227.93** | **135,526.49** | **29,471.73** | **23,088.00** |

**Year: 2023**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 0.00 | 0.00 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.76 | 65.53 | 0.05 | 0.18 | 0.06 | 0.06 | 4.29 | 1.14 | N/A | 3.23 | 655.00 | 0.41 | 1.83 | 0.57 | 0.55 | 38.27 | 10.18 | N/A | 1,006.60 | 204,359.71 | 126.52 | 569.73 | 178.60 | 170.84 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.96 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.64 | 39.56 | 0.14 | 0.11 | 0.05 | 0.05 | 445.23 | 93.91 | N/A | 199.25 | 12,341.30 | 44.36 | 33.40 | 14.78 | 14.14 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 7.20 | 70.28 | 0.22 | 2.18E-01 | 8.37E-02 | 8.09E-02 | 48.81 | 10.53 | N/A | 48.15 | 700.67 | 1.68 | 2.10 | 0.77 | 0.74 | 500.75 | 107.67 | N/A | 15,023.00 | 218,608.45 | 522.87 | 655.22 | 238.94 | 230.54 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **13.12** | **70.95** | **22.16** | **0.23** | **0.10** | **0.10** | **50.43** | **11.28** | **3.08** | **63.55** | **702.42** | **525.08** | **2.14** | **0.82** | **0.79** | **504.97** | **109.64** | **74.00** | **19,827.80** | **219,154.45** | **163,823.67** | **667.39** | **255.78** | **247.39** | **157,062.75** | **34,107.52** | **23,088.00** |

**Year: 2024**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 0.00 | 0.00 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.73 | 65.02 | 0.05 | 0.18 | 0.06 | 0.05 | 4.29 | 1.14 | N/A | 3.17 | 649.87 | 0.41 | 1.82 | 0.56 | 0.54 | 38.27 | 10.18 | N/A | 988.86 | 202,760.17 | 126.87 | 569.23 | 175.32 | 167.70 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.93 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.64 | 39.25 | 0.14 | 0.11 | 0.05 | 0.04 | 445.23 | 93.91 | N/A | 198.97 | 12,246.07 | 43.80 | 33.37 | 14.38 | 13.76 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 7.17 | 69.73 | 0.22 | 2.17E-01 | 8.25E-02 | 7.98E-02 | 48.81 | 10.53 | N/A | 48.09 | 695.24 | 1.68 | 2.10 | 0.75 | 0.73 | 500.75 | 107.67 | N/A | 15,004.99 | 216,913.68 | 522.66 | 654.69 | 235.26 | 227.02 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **13.09** | **70.41** | **22.16** | **0.23** | **0.10** | **0.10** | **50.43** | **11.28** | **3.08** | **63.49** | **696.99** | **525.08** | **2.14** | **0.81** | **0.78** | **504.97** | **109.64** | **74.00** | **19,809.79** | **217,459.68** | **163,823.46** | **666.86** | **252.11** | **243.87** | **157,062.75** | **34,107.52** | **23,088.00** |

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions

**Year: 2025**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.89 | 0.06 | 0.01 | 3.65E-03 | 2.54E-03 | 2.33E-03 | 1.05 | 0.27 | N/A | 35.72 | 2.51 | 0.51 | 0.15 | 0.10 | 0.09 | 42.01 | 10.79 | N/A | 4,286.68 | 301.34 | 61.53 | 17.50 | 12.17 | 11.19 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.00 | 0.00 | 0.00 | 1.08E-05 | 9.00E-06 | 8.27E-06 | 0.85 | 0.10 | N/A | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.40 | 0.39 | N/A | 2.32 | 0.20 | 0.04 | 0.01 | 0.00 | 0.00 | 407.67 | 46.83 | N/A |
| Yearly Construction Total | 30.25 | 3.45 | 0.79 | 1.13E-01 | 1.06E-01 | 1.06E-01 | 19.37 | 4.00 | N/A | 313.23 | 34.92 | 7.95 | 1.19 | 1.09 | 1.08 | 220.15 | 47.53 | N/A | 22,094.95 | 2,402.30 | 543.55 | 84.99 | 76.40 | 75.42 | 15,345.80 | 3,400.04 | N/A |
| Flares | 0.20 | 0.20 | 0.04 | 2.56E-01 | 1.98E-02 | 1.98E-02 | N/A | N/A | N/A | 4.68 | 4.68 | 0.94 | 6.14 | 0.47 | 0.47 | N/A | N/A | N/A | 1,708.95 | 1,708.95 | 344.27 | 2,241.45 | 173.37 | 173.37 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.70 | 64.57 | 0.05 | 1.84E-01 | 5.64E-02 | 5.39E-02 | 4.29 | 1.14 | N/A | 3.12 | 645.44 | 0.41 | 1.82 | 0.55 | 0.53 | 38.27 | 10.18 | N/A | 972.23 | 201,378.00 | 127.10 | 568.77 | 172.44 | 164.89 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.90 | 0.01 | 1.07E-02 | 4.50E-03 | 4.30E-03 | 44.52 | 9.39 | N/A | 0.36 | 5.51 | 0.09 | 0.00 | 0.01 | 0.01 | 445.23 | 93.91 | N/A | 198.63 | 12,162.10 | 43.28 | 33.34 | 14.03 | 13.42 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 7.33 | 69.46 | 0.26 | 4.73E-01 | 1.01E-01 | 9.85E-02 | 50.54 | 10.89 | N/A | 52.44 | 661.75 | 2.56 | 8.13 | 1.19 | 1.16 | 500.75 | 107.67 | N/A | 16,696.96 | 217,156.49 | 866.64 | 2,895.65 | 405.40 | 397.24 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **43.50** | **73.58** | **22.99** | **0.60** | **0.23** | **0.23** | **71.53** | **15.65** | **3.08** | **381.08** | **698.42** | **533.92** | **9.37** | **2.33** | **2.30** | **725.12** | **157.17** | **74.00** | **43,596.72** | **220,104.79** | **164,710.99** | **2,992.81** | **498.65** | **489.50** | **172,408.55** | **37,507.56** | **23,088.00** |

**Year: 2026**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 0.50 | 0.50 | 0.10 | 0.65 | 0.05 | 0.05 | N/A | N/A | N/A | 11.93 | 11.93 | 2.40 | 15.65 | 1.21 | 1.21 | N/A | N/A | N/A | 4,356.10 | 4,356.10 | 877.53 | 5,713.43 | 441.92 | 441.92 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.68 | 64.14 | 0.05 | 0.18 | 0.06 | 0.05 | 4.29 | 1.14 | N/A | 3.07 | 641.10 | 0.41 | 1.82 | 0.54 | 0.52 | 38.27 | 10.18 | N/A | 957.28 | 200,024.28 | 127.12 | 568.29 | 169.12 | 161.77 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.87 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.63 | 38.72 | 0.14 | 0.11 | 0.04 | 0.04 | 445.23 | 93.91 | N/A | 198.05 | 12,081.20 | 42.70 | 33.31 | 13.65 | 13.06 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 7.61 | 69.30 | 0.32 | 8.69E-01 | 1.31E-01 | 1.28E-01 | 50.54 | 10.89 | N/A | 59.92 | 697.87 | 4.08 | 17.75 | 1.94 | 1.92 | 500.75 | 107.67 | N/A | 19,328.58 | 218,369.02 | 1,399.35 | 6,367.12 | 670.25 | 662.32 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **13.53** | **69.97** | **22.26** | **0.88** | **0.15** | **0.15** | **52.16** | **11.64** | **3.08** | **75.32** | **699.62** | **527.48** | **17.79** | **2.00** | **1.97** | **504.97** | **109.64** | **74.00** | **24,133.38** | **218,915.02** | **164,700.15** | **6,379.29** | **687.10** | **679.16** | **157,062.75** | **34,107.52** | **23,088.00** |

**Year: 2027**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 0.80 | 0.80 | 0.16 | 1.04 | 0.08 | 0.08 | N/A | N/A | N/A | 19.08 | 19.08 | 3.84 | 25.03 | 1.94 | 1.94 | N/A | N/A | N/A | 6,965.29 | 6,965.29 | 1,403.15 | 9,135.64 | 706.62 | 706.62 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.66 | 63.84 | 0.05 | 0.18 | 0.05 | 0.05 | 4.29 | 1.14 | N/A | 3.02 | 638.15 | 0.41 | 1.82 | 0.53 | 0.51 | 38.27 | 10.18 | N/A | 942.98 | 199,103.80 | 126.77 | 567.92 | 166.69 | 159.45 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.85 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.63 | 38.52 | 0.14 | 0.11 | 0.04 | 0.04 | 445.23 | 93.91 | N/A | 197.50 | 12,019.63 | 42.28 | 33.28 | 13.38 | 12.80 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 7.89 | 69.28 | 0.38 | 1.26E+00 | 1.60E-01 | 1.57E-01 | 50.54 | 10.89 | N/A | 67.02 | 701.87 | 5.51 | 27.12 | 2.66 | 2.63 | 500.75 | 107.67 | N/A | 21,922.94 | 219,996.17 | 1,924.20 | 9,788.93 | 932.25 | 924.43 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **13.81** | **69.95** | **22.32** | **1.27** | **0.18** | **0.18** | **52.16** | **11.64** | **3.08** | **82.42** | **703.62** | **528.91** | **27.16** | **2.71** | **2.69** | **504.97** | **109.64** | **74.00** | **26,727.74** | **220,542.17** | **165,225.00** | **9,801.10** | **949.10** | **941.28** | **157,062.75** | **34,107.52** | **23,088.00** |

**Year: 2028**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 1.09 | 1.09 | 0.22 | 1.43E+00 | 1.10E-01 | 1.10E-01 | N/A | N/A | N/A | 26.10 | 26.10 | 5.26 | 34.23 | 2.65 | 2.65 | N/A | N/A | N/A | 9,527.05 | 9,527.05 | 1,919.22 | 12,495.62 | 966.51 | 966.51 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.64 | 63.58 | 0.05 | 1.83E-01 | 5.36E-02 | 5.12E-02 | 4.29 | 1.14 | N/A | 2.98 | 635.57 | 0.41 | 1.82 | 0.53 | 0.50 | 38.27 | 10.18 | N/A | 930.32 | 198,296.98 | 126.52 | 567.52 | 164.06 | 156.97 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.84 | 0.01 | 1.07E-02 | 4.20E-03 | 4.02E-03 | 44.52 | 9.39 | N/A | 0.63 | 38.36 | 0.13 | 0.11 | 0.04 | 0.04 | 445.23 | 93.91 | N/A | 197.08 | 11,967.59 | 41.90 | 33.25 | 13.11 | 12.54 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 8.16 | 69.30 | 0.43 | 1.64E+00 | 1.89E-01 | 1.86E-01 | 50.54 | 10.89 | N/A | 74.00 | 706.14 | 6.93 | 36.33 | 3.36 | 3.34 | 500.75 | 107.67 | N/A | 24,471.61 | 221,699.06 | 2,439.63 | 13,148.48 | 1,189.24 | 1,181.59 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | 9.12 | 0.82 | 0.19 | 0.02 | 0.03 | 0.03 | 0.56 | 0.31 | N/A | 72.95 | 6.53 | 1.51 | 0.12 | 0.20 | 0.20 | 4.52 | 2.48 | N/A | 8,889.35 | 782.38 | 180.54 | 14.76 | 24.07 | 24.07 | 891.30 | 468.64 | N/A |
| Off-Site Compost Facility Construction Sources | 0.40 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 | N/A | 3.19 | 0.25 | 0.17 | 0.01 | 0.01 | 0.01 | 0.27 | 0.07 | N/A | 413.90 | 32.88 | 22.10 | 1.30 | 0.77 | 0.72 | 103.55 | 27.47 | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 15.44 | 1.52 | 22.16 | 3.16E-02 | 4.66E-02 | 4.66E-02 | 2.22 | 1.08 | 3.08 | 91.54 | 8.53 | 525.08 | 0.17 | 0.26 | 0.26 | 9.01 | 4.52 | 74.00 | 14,108.06 | 1,361.26 | 163,503.44 | 28.23 | 41.69 | 41.64 | 2,311.62 | 1,110.32 | 23,088.00 |
| **Yearly Total** | **23.60** | **70.82** | **22.59** | **1.67** | **0.24** | **0.23** | **52.76** | **11.96** | **3.08** | **165.54** | **714.67** | **532.00** | **36.50** | **3.62** | **3.60** | **509.75** | **112.20** | **74.00** | **38,579.66** | **223,060.32** | **165,943.07** | **13,176.71** | **1,230.93** | **1,223.22** | **158,057.61** | **34,603.63** | **23,088.00** |

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions
**Year: 2029**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.74 | 0.05 | 0.01 | 3.30E-03 | 2.07E-03 | 1.90E-03 | 1.05 | 0.27 | N/A | 29.66 | 1.97 | 0.39 | 0.13 | 0.08 | 0.08 | 42.01 | 10.79 | N/A | 3,559.13 | 236.43 | 46.56 | 15.83 | 9.93 | 9.13 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.00 | 0.00 | 0.00 | 9.60E-06 | 6.98E-06 | 6.42E-06 | 0.85 | 0.10 | N/A | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.40 | 0.39 | N/A | 1.68 | 0.14 | 0.03 | 0.00 | 0.00 | 0.00 | 407.67 | 46.83 | N/A |
| Yearly Construction Total | 30.09 | 3.43 | 0.79 | 1.13E-01 | 1.06E-01 | 1.05E-01 | 19.37 | 4.00 | N/A | 307.16 | 34.38 | 7.83 | 1.18 | 1.07 | 1.07 | 220.15 | 47.53 | N/A | 21,366.76 | 2,337.33 | 528.57 | 83.32 | 74.15 | 73.36 | 15,345.80 | 3,400.04 | N/A |
| Flares | 1.37 | 1.37 | 0.28 | 1.80E+00 | 1.39E-01 | 1.39E-01 | N/A | N/A | N/A | 32.99 | 32.99 | 6.65 | 43.27 | 3.35 | 3.35 | N/A | N/A | N/A | 12,041.36 | 12,041.36 | 2,425.72 | 15,793.38 | 1,221.59 | 1,221.59 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.62 | 63.16 | 0.04 | 1.83E-01 | 5.20E-02 | 4.97E-02 | 4.29 | 1.14 | N/A | 2.94 | 631.35 | 0.40 | 1.82 | 0.51 | 0.49 | 38.27 | 10.18 | N/A | 916.53 | 196,980.02 | 126.34 | 566.94 | 159.53 | 152.60 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.81 | 0.01 | 1.06E-02 | 4.07E-03 | 3.89E-03 | 44.52 | 9.39 | N/A | 0.63 | 38.13 | 0.13 | 0.11 | 0.04 | 0.04 | 445.23 | 93.91 | N/A | 196.20 | 11,896.84 | 41.23 | 33.22 | 12.68 | 12.13 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 8.43 | 69.14 | 0.49 | 2.02E+00 | 2.16E-01 | 2.14E-01 | 50.54 | 10.89 | N/A | 80.84 | 708.58 | 8.31 | 45.36 | 4.04 | 4.02 | 500.75 | 107.67 | N/A | 26,971.25 | 222,825.66 | 2,945.29 | 16,445.63 | 1,439.36 | 1,431.88 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **44.44** | **73.24** | **23.22** | **2.15** | **0.34** | **0.34** | **71.53** | **15.65** | **3.08** | **403.40** | **744.71** | **539.54** | **46.58** | **5.17** | **5.14** | **725.12** | **157.17** | **74.00** | **53,142.81** | **225,708.99** | **166,774.66** | **16,541.11** | **1,530.36** | **1,522.09** | **172,408.55** | **37,507.56** | **23,088.00** |

**Year: 2030**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 1.66 | 1.66 | 0.33 | 2.17 | 0.17 | 0.17 | N/A | N/A | N/A | 39.75 | 39.75 | 8.01 | 52.13 | 4.03 | 4.03 | N/A | N/A | N/A | 14,508.23 | 14,508.23 | 2,922.67 | 19,028.92 | 1,471.85 | 1,471.85 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.60 | 62.86 | 0.04 | 0.18 | 0.05 | 0.05 | 4.29 | 1.14 | N/A | 2.90 | 628.39 | 0.40 | 1.82 | 0.50 | 0.48 | 38.27 | 10.18 | N/A | 903.48 | 196,058.48 | 125.90 | 566.42 | 155.68 | 148.92 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.80 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.63 | 37.96 | 0.13 | 0.11 | 0.04 | 0.04 | 445.23 | 93.91 | N/A | 195.51 | 11,843.66 | 40.78 | 33.19 | 12.35 | 11.82 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 8.69 | 69.10 | 0.55 | 2.39E+00 | 2.43E-01 | 2.41E-01 | 50.54 | 10.89 | N/A | 87.56 | 712.22 | 9.67 | 54.22 | 4.72 | 4.69 | 500.75 | 107.67 | N/A | 29,424.38 | 224,317.82 | 3,441.35 | 19,680.61 | 1,685.44 | 1,678.15 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **14.61** | **69.78** | **22.49** | **2.40** | **0.26** | **0.26** | **52.16** | **11.64** | **3.08** | **102.96** | **713.97** | **533.07** | **54.26** | **4.77** | **4.75** | **504.97** | **109.64** | **74.00** | **34,229.18** | **224,863.82** | **166,742.15** | **19,692.77** | **1,702.29** | **1,695.00** | **157,062.75** | **34,107.52** | **23,088.00** |

**Year: 2031**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 1.93 | 1.93 | 0.39 | 2.53 | 0.20 | 0.20 | N/A | N/A | N/A | 46.38 | 46.38 | 9.34 | 60.83 | 4.70 | 4.70 | N/A | N/A | N/A | 16,927.67 | 16,927.67 | 3,410.07 | 22,202.23 | 1,717.30 | 1,717.30 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.59 | 62.54 | 0.04 | 0.18 | 0.05 | 0.05 | 4.29 | 1.14 | N/A | 2.85 | 625.24 | 0.40 | 1.81 | 0.48 | 0.46 | 38.27 | 10.18 | N/A | 890.43 | 195,076.29 | 125.40 | 565.83 | 151.30 | 144.74 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.78 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.62 | 37.78 | 0.13 | 0.11 | 0.04 | 0.04 | 445.23 | 93.91 | N/A | 194.77 | 11,788.29 | 40.35 | 33.15 | 12.01 | 11.49 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 8.95 | 69.05 | 0.60 | 2.75E+00 | 2.70E-01 | 2.67E-01 | 50.54 | 10.89 | N/A | 94.14 | 715.52 | 11.00 | 62.91 | 5.37 | 5.35 | 500.75 | 107.67 | N/A | 31,830.02 | 225,699.70 | 3,927.81 | 22,853.30 | 1,926.18 | 1,919.09 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **14.87** | **69.72** | **22.55** | **2.77** | **0.29** | **0.29** | **52.16** | **11.64** | **3.08** | **109.54** | **717.27** | **534.40** | **62.95** | **5.43** | **5.41** | **504.97** | **109.64** | **74.00** | **36,634.82** | **226,245.70** | **167,228.61** | **22,865.47** | **1,943.03** | **1,935.94** | **157,062.75** | **34,107.52** | **23,088.00** |

**Year: 2032**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 2.20 | 2.20 | 0.44 | 2.89 | 0.22 | 0.22 | N/A | N/A | N/A | 52.88 | 52.88 | 10.65 | 69.35 | 5.36 | 5.36 | N/A | N/A | N/A | 19,299.66 | 19,299.66 | 3,887.90 | 25,313.33 | 1,957.94 | 1,957.94 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.57 | 62.15 | 0.04 | 0.18 | 0.05 | 0.05 | 4.29 | 1.14 | N/A | 2.81 | 621.32 | 0.40 | 1.81 | 0.47 | 0.45 | 38.27 | 10.18 | N/A | 877.04 | 193,851.89 | 124.89 | 565.12 | 146.06 | 139.72 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.76 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.62 | 37.57 | 0.13 | 0.11 | 0.04 | 0.04 | 445.23 | 93.91 | N/A | 193.98 | 11,721.13 | 39.99 | 33.11 | 11.65 | 11.15 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 9.20 | 68.90 | 0.66 | 3.11E+00 | 2.95E-01 | 2.93E-01 | 50.54 | 10.89 | N/A | 100.59 | 717.88 | 12.31 | 71.44 | 6.02 | 5.99 | 500.75 | 107.67 | N/A | 34,187.84 | 226,780.13 | 4,404.79 | 25,963.64 | 2,161.21 | 2,154.37 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **15.13** | **69.58** | **22.60** | **3.12** | **0.32** | **0.31** | **52.16** | **11.64** | **3.08** | **115.99** | **719.63** | **535.71** | **71.47** | **6.07** | **6.05** | **504.97** | **109.64** | **74.00** | **38,992.64** | **227,326.13** | **167,705.59** | **25,975.81** | **2,178.06** | **2,171.21** | **157,062.75** | **34,107.52** | **23,088.00** |

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions
**Year: 2033**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.63 | 0.04 | 0.01 | 3.08E-03 | 1.63E-03 | 1.50E-03 | 1.05 | 0.27 | N/A | 25.26 | 1.60 | 0.30 | 0.12 | 0.07 | 0.06 | 42.01 | 10.79 | N/A | 3,031.77 | 191.65 | 35.95 | 14.80 | 7.84 | 7.21 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.00 | 0.00 | 0.00 | 8.79E-06 | 4.97E-06 | 4.57E-06 | 0.85 | 0.10 | N/A | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.40 | 0.39 | N/A | 1.14 | 0.08 | 0.02 | 0.00 | 0.00 | 0.00 | 407.67 | 46.83 | N/A |
| Yearly Construction Total | 29.98 | 3.42 | 0.78 | 1.13E-01 | 1.05E-01 | 1.05E-01 | 19.37 | 4.00 | N/A | 302.76 | 34.01 | 7.74 | 1.17 | 1.06 | 1.05 | 220.15 | 47.53 | N/A | 20,838.86 | 2,292.50 | 517.95 | 82.29 | 72.06 | 71.44 | 15,345.80 | 3,400.04 | N/A |
| Flares | 2.47 | 2.47 | 0.50 | 3.24E+00 | 2.50E-01 | 2.50E-01 | N/A | N/A | N/A | 59.24 | 59.24 | 11.93 | 77.70 | 6.01 | 6.01 | N/A | N/A | N/A | 21,624.22 | 21,624.22 | 4,356.18 | 28,362.20 | 2,193.76 | 2,193.76 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.55 | 61.75 | 0.04 | 1.82E-01 | 4.59E-02 | 4.38E-02 | 4.29 | 1.14 | N/A | 2.77 | 617.28 | 0.40 | 1.81 | 0.45 | 0.43 | 38.27 | 10.18 | N/A | 864.11 | 192,590.66 | 124.40 | 564.37 | 140.81 | 134.70 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.74 | 0.01 | 1.06E-02 | 3.62E-03 | 3.46E-03 | 44.52 | 9.39 | N/A | 0.62 | 37.35 | 0.13 | 0.11 | 0.04 | 0.03 | 445.23 | 93.91 | N/A | 193.15 | 11,653.85 | 39.61 | 33.07 | 11.29 | 10.81 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 9.45 | 68.74 | 0.71 | 3.45E+00 | 3.20E-01 | 3.18E-01 | 50.54 | 10.89 | N/A | 106.92 | 719.99 | 13.59 | 79.79 | 6.64 | 6.62 | 500.75 | 107.67 | N/A | 36,498.64 | 227,776.17 | 4,872.19 | 29,011.72 | 2,391.43 | 2,384.83 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **45.36** | **72.84** | **23.44** | **3.58** | **0.45** | **0.44** | **71.53** | **15.65** | **3.08** | **425.08** | **755.74** | **544.73** | **81.00** | **7.75** | **7.73** | **725.12** | **157.17** | **74.00** | **62,142.30** | **230,614.67** | **168,690.94** | **29,106.18** | **2,480.34** | **2,473.11** | **172,408.55** | **37,507.56** | **23,088.00** |

**Year: 2034**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 2.73 | 2.73 | 0.55 | 3.58 | 0.28 | 0.28 | N/A | N/A | N/A | 65.48 | 65.48 | 13.19 | 85.89 | 6.64 | 6.64 | N/A | N/A | N/A | 23,901.33 | 23,901.33 | 4,814.91 | 31,348.85 | 2,424.77 | 2,424.77 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.54 | 61.08 | 0.04 | 0.18 | 0.04 | 0.04 | 4.29 | 1.14 | N/A | 2.72 | 610.68 | 0.40 | 1.81 | 0.43 | 0.41 | 38.27 | 10.18 | N/A | 849.76 | 190,531.55 | 124.10 | 563.34 | 133.67 | 127.86 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.70 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.62 | 37.02 | 0.13 | 0.11 | 0.03 | 0.03 | 445.23 | 93.91 | N/A | 191.93 | 11,550.73 | 39.05 | 33.01 | 10.80 | 10.34 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 9.70 | 68.31 | 0.76 | 3.79E+00 | 3.44E-01 | 3.42E-01 | 50.54 | 10.89 | N/A | 113.11 | 719.30 | 14.84 | 87.97 | 7.25 | 7.23 | 500.75 | 107.67 | N/A | 38,760.18 | 227,891.05 | 5,330.05 | 31,997.29 | 2,614.80 | 2,608.54 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **15.62** | **68.98** | **22.71** | **3.81** | **0.37** | **0.36** | **52.16** | **11.64** | **3.08** | **128.51** | **721.05** | **538.24** | **88.00** | **7.31** | **7.29** | **504.97** | **109.64** | **74.00** | **43,564.98** | **228,437.05** | **168,630.85** | **32,009.45** | **2,631.65** | **2,625.38** | **157,062.75** | **34,107.52** | **23,088.00** |

**Year: 2035**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 2.98 | 2.98 | 0.60 | 3.91 | 0.30 | 0.30 | N/A | N/A | N/A | 71.59 | 71.59 | 14.42 | 93.90 | 7.26 | 7.26 | N/A | N/A | N/A | 26,131.01 | 26,131.01 | 5,264.07 | 34,273.28 | 2,650.97 | 2,650.97 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.53 | 60.65 | 0.04 | 0.18 | 0.04 | 0.04 | 4.29 | 1.14 | N/A | 2.68 | 606.33 | 0.40 | 1.80 | 0.42 | 0.40 | 38.27 | 10.18 | N/A | 837.04 | 189,176.03 | 123.61 | 562.63 | 129.64 | 124.02 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.68 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.61 | 36.80 | 0.12 | 0.11 | 0.03 | 0.03 | 445.23 | 93.91 | N/A | 190.95 | 11,481.50 | 38.61 | 32.97 | 10.50 | 10.05 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 9.94 | 68.10 | 0.81 | 4.13E+00 | 3.69E-01 | 3.67E-01 | 50.54 | 10.89 | N/A | 119.17 | 720.84 | 16.07 | 95.98 | 7.86 | 7.84 | 500.75 | 107.67 | N/A | 40,976.16 | 228,695.98 | 5,778.29 | 34,920.97 | 2,836.68 | 2,830.60 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **15.86** | **68.78** | **22.76** | **4.14** | **0.39** | **0.39** | **52.16** | **11.64** | **3.08** | **134.57** | **722.59** | **539.47** | **96.01** | **7.91** | **7.89** | **504.97** | **109.64** | **74.00** | **45,780.96** | **229,241.98** | **169,079.09** | **34,933.14** | **2,853.53** | **2,847.45** | **157,062.75** | **34,107.52** | **23,088.00** |

**Year: 2036**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.23 | 3.23 | 0.65 | 4.24 | 0.33 | 0.33 | N/A | N/A | N/A | 77.57 | 77.57 | 15.63 | 101.74 | 7.87 | 7.87 | N/A | N/A | N/A | 28,313.24 | 28,313.24 | 5,703.68 | 37,135.48 | 2,872.36 | 2,872.36 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.51 | 60.30 | 0.04 | 0.18 | 0.04 | 0.04 | 4.29 | 1.14 | N/A | 2.65 | 602.88 | 0.39 | 1.80 | 0.41 | 0.40 | 38.27 | 10.18 | N/A | 826.89 | 188,098.14 | 123.22 | 562.17 | 129.06 | 123.46 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.66 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.61 | 36.62 | 0.12 | 0.11 | 0.03 | 0.03 | 445.23 | 93.91 | N/A | 190.17 | 11,425.53 | 38.28 | 32.95 | 10.40 | 9.95 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 10.17 | 67.99 | 0.86 | 4.45E+00 | 3.94E-01 | 3.92E-01 | 50.54 | 10.89 | N/A | 125.12 | 723.18 | 17.27 | 103.82 | 8.46 | 8.44 | 500.75 | 107.67 | N/A | 43,147.45 | 229,744.36 | 6,217.18 | 37,782.70 | 3,057.38 | 3,051.33 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.10** | **68.66** | **22.81** | **4.47** | **0.41** | **0.41** | **52.16** | **11.64** | **3.08** | **140.52** | **724.93** | **540.67** | **103.85** | **8.52** | **8.50** | **504.97** | **109.64** | **74.00** | **47,952.25** | **230,290.36** | **169,517.98** | **37,794.87** | **3,074.23** | **3,068.18** | **157,062.75** | **34,107.52** | **23,088.00** |

**Chiquita Canyon Landfill EIR**
**Summary Construction and Operation Emissions**
Controlled Emissions
**Year: 2037**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.55 | 0.03 | 0.01 | 2.96E-03 | 1.30E-03 | 1.20E-03 | 1.05 | 0.27 | N/A | 21.88 | 1.37 | 0.24 | 0.12 | 0.05 | 0.05 | 42.01 | 10.79 | N/A | 2,626.00 | 164.51 | 28.55 | 14.21 | 6.26 | 5.75 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.00 | 0.00 | 0.00 | 8.27E-06 | 3.76E-06 | 3.46E-06 | 0.85 | 0.10 | N/A | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.40 | 0.39 | N/A | 0.84 | 0.06 | 0.01 | 0.00 | 0.00 | 0.00 | 407.67 | 46.83 | N/A |
| Yearly Construction Total | 29.90 | 3.42 | 0.78 | 1.13E-01 | 1.05E-01 | 1.05E-01 | 19.37 | 4.00 | N/A | 299.38 | 33.78 | 7.68 | 1.17 | 1.04 | 1.04 | 220.15 | 47.53 | N/A | 20,432.79 | 2,265.34 | 510.55 | 81.70 | 70.48 | 69.97 | 15,345.80 | 3,400.04 | N/A |
| Flares | 3.48 | 3.48 | 0.70 | 4.56E+00 | 3.53E-01 | 3.53E-01 | N/A | N/A | N/A | 83.42 | 83.42 | 16.80 | 109.41 | 8.46 | 8.46 | N/A | N/A | N/A | 30,448.04 | 30,448.04 | 6,133.74 | 39,935.47 | 3,088.93 | 3,088.93 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.50 | 59.99 | 0.04 | 1.81E-01 | 4.20E-02 | 4.01E-02 | 4.29 | 1.14 | N/A | 2.62 | 599.77 | 0.39 | 1.80 | 0.41 | 0.40 | 38.27 | 10.18 | N/A | 818.14 | 187,129.11 | 123.01 | 561.96 | 129.20 | 123.60 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.65 | 0.01 | 1.06E-02 | 3.31E-03 | 3.17E-03 | 44.52 | 9.39 | N/A | 0.61 | 36.46 | 0.12 | 0.11 | 0.03 | 0.03 | 445.23 | 93.91 | N/A | 189.35 | 11,376.03 | 37.93 | 32.94 | 10.33 | 9.89 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 10.41 | 67.91 | 0.91 | 4.77E+00 | 4.18E-01 | 4.17E-01 | 50.54 | 10.89 | N/A | 130.93 | 725.77 | 18.45 | 111.49 | 9.06 | 9.04 | 500.75 | 107.67 | N/A | 45,272.68 | 230,860.62 | 6,646.67 | 40,582.45 | 3,274.03 | 3,267.98 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **46.23** | **72.00** | **23.64** | **4.90** | **0.54** | **0.54** | **71.53** | **15.65** | **3.08** | **445.71** | **761.30** | **549.53** | **112.69** | **10.15** | **10.13** | **725.12** | **157.17** | **74.00** | **70,510.26** | **233,671.96** | **170,458.02** | **40,676.32** | **3,361.36** | **3,354.80** | **172,408.55** | **37,507.56** | **23,088.00** |

**Year: 2038**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.71 | 3.71 | 0.75 | 4.87E+00 | 3.77E-01 | 3.77E-01 | N/A | N/A | N/A | 89.14 | 89.14 | 17.96 | 116.91 | 9.04 | 9.04 | N/A | N/A | N/A | 32,535.39 | 32,535.39 | 6,554.23 | 42,673.23 | 3,300.69 | 3,300.69 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.49 | 59.59 | 0.04 | 1.81E-01 | 4.23E-02 | 4.05E-02 | 4.29 | 1.14 | N/A | 2.60 | 595.74 | 0.40 | 1.80 | 0.42 | 0.40 | 38.27 | 10.18 | N/A | 811.46 | 185,871.97 | 123.38 | 561.98 | 130.36 | 124.70 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.63 | 0.01 | 1.06E-02 | 3.30E-03 | 3.16E-03 | 44.52 | 9.39 | N/A | 0.60 | 36.26 | 0.12 | 0.11 | 0.03 | 0.03 | 445.23 | 93.91 | N/A | 188.44 | 11,314.46 | 37.52 | 32.94 | 10.30 | 9.85 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 10.64 | 67.72 | 0.96 | 5.09E+00 | 4.43E-01 | 4.41E-01 | 50.54 | 10.89 | N/A | 136.63 | 727.26 | 19.60 | 118.99 | 9.64 | 9.62 | 500.75 | 107.67 | N/A | 47,352.45 | 231,629.26 | 7,067.13 | 43,320.24 | 3,486.92 | 3,480.80 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | 9.12 | 0.82 | 0.19 | 0.02 | 0.03 | 0.03 | 0.56 | 0.31 | N/A | 72.95 | 6.53 | 1.51 | 0.12 | 0.20 | 0.20 | 4.52 | 2.48 | N/A | 8,889.35 | 782.38 | 180.54 | 14.76 | 24.07 | 24.07 | 891.30 | 468.64 | N/A |
| Off-Site Compost Facility Construction Sources | 0.40 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 | N/A | 3.19 | 0.25 | 0.17 | 0.01 | 0.01 | 0.01 | 0.27 | 0.07 | N/A | 413.90 | 32.88 | 22.10 | 1.30 | 0.77 | 0.72 | 103.55 | 27.47 | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 15.44 | 1.52 | 22.16 | 3.16E-02 | 4.66E-02 | 4.66E-02 | 2.22 | 1.08 | 3.08 | 91.54 | 8.53 | 525.08 | 0.17 | 0.26 | 0.26 | 9.01 | 4.52 | 74.00 | 14,108.06 | 1,361.26 | 163,503.44 | 28.23 | 41.69 | 41.64 | 2,311.62 | 1,110.32 | 23,088.00 |
| **Yearly Total** | **26.08** | **69.24** | **23.11** | **5.12** | **0.49** | **0.49** | **52.76** | **11.96** | **3.08** | **228.16** | **735.79** | **544.68** | **119.16** | **9.90** | **9.88** | **509.75** | **112.20** | **74.00** | **61,460.50** | **232,990.52** | **170,570.57** | **43,348.47** | **3,528.61** | **3,522.44** | **158,057.61** | **34,603.63** | **23,088.00** |

**Year: 2039**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.95 | 3.95 | 0.80 | 5.18 | 0.40 | 0.40 | N/A | N/A | N/A | 94.73 | 94.73 | 19.08 | 124.24 | 9.61 | 9.61 | N/A | N/A | N/A | 34,575.31 | 34,575.31 | 6,965.17 | 45,348.77 | 3,507.64 | 3,507.64 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.49 | 59.30 | 0.04 | 0.18 | 0.04 | 0.04 | 4.29 | 1.14 | N/A | 2.59 | 592.84 | 0.40 | 1.80 | 0.43 | 0.41 | 38.27 | 10.18 | N/A | 808.53 | 184,966.09 | 124.32 | 562.95 | 133.87 | 128.06 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.61 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.60 | 36.12 | 0.12 | 0.11 | 0.03 | 0.03 | 445.23 | 93.91 | N/A | 187.73 | 11,270.28 | 37.19 | 32.99 | 10.39 | 9.94 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 10.86 | 67.65 | 1.01 | 5.39E+00 | 4.68E-01 | 4.66E-01 | 50.54 | 10.89 | N/A | 142.21 | 729.80 | 20.73 | 126.32 | 10.22 | 10.20 | 500.75 | 107.67 | N/A | 49,388.72 | 232,719.12 | 7,478.68 | 45,996.79 | 3,697.46 | 3,691.20 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.79** | **68.32** | **22.95** | **5.41** | **0.49** | **0.49** | **52.16** | **11.64** | **3.08** | **157.61** | **731.55** | **544.13** | **126.36** | **10.27** | **10.25** | **504.97** | **109.64** | **74.00** | **54,193.52** | **233,265.12** | **170,779.48** | **46,008.96** | **3,714.31** | **3,708.05** | **157,062.75** | **34,107.52** | **23,088.00** |

**Year: 2040**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.92 | 3.92 | 0.79 | 5.14 | 0.40 | 0.40 | N/A | N/A | N/A | 94.08 | 94.08 | 18.95 | 123.39 | 9.54 | 9.54 | N/A | N/A | N/A | 34,338.11 | 34,338.11 | 6,917.39 | 45,037.66 | 3,483.58 | 3,483.58 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.48 | 58.78 | 0.04 | 0.18 | 0.04 | 0.04 | 4.29 | 1.14 | N/A | 2.59 | 587.69 | 0.40 | 1.81 | 0.44 | 0.43 | 38.27 | 10.18 | N/A | 807.83 | 183,360.47 | 126.00 | 564.11 | 138.82 | 132.80 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.59 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.60 | 35.87 | 0.12 | 0.11 | 0.03 | 0.03 | 445.23 | 93.91 | N/A | 186.98 | 11,192.12 | 36.81 | 33.05 | 10.53 | 10.07 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 10.83 | 67.08 | 1.00 | 5.36E+00 | 4.67E-01 | 4.64E-01 | 50.54 | 10.89 | N/A | 141.55 | 723.76 | 20.60 | 125.47 | 10.17 | 10.15 | 500.75 | 107.67 | N/A | 49,150.07 | 230,798.14 | 7,432.20 | 45,686.91 | 3,678.49 | 3,672.01 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.76** | **67.76** | **22.95** | **5.37** | **0.49** | **0.49** | **52.16** | **11.64** | **3.08** | **156.95** | **725.51** | **544.00** | **125.51** | **10.22** | **10.20** | **504.97** | **109.64** | **74.00** | **53,954.87** | **231,344.14** | **170,733.00** | **45,699.08** | **3,695.34** | **3,688.86** | **157,062.75** | **34,107.52** | **23,088.00** |

**Chiquita Canyon Landfill EIR**

**Summary Construction and Operation Emissions**

Controlled Emissions

**Year: 2041**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | 29.35 | 3.38 | 0.78 | 1.10E-01 | 1.04E-01 | 1.04E-01 | 17.48 | 3.63 | N/A | 277.49 | 32.41 | 7.44 | 1.05 | 0.99 | 0.99 | 174.75 | 36.35 | N/A | 17,805.95 | 2,100.77 | 481.98 | 67.48 | 64.22 | 64.22 | 9,897.24 | 2,058.63 | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | 0.51 | 0.03 | 0.01 | 2.90E-03 | 1.10E-03 | 1.01E-03 | 1.05 | 0.27 | N/A | 20.21 | 1.27 | 0.21 | 0.12 | 0.04 | 0.04 | 42.01 | 10.79 | N/A | 2,425.76 | 152.72 | 25.52 | 13.93 | 5.27 | 4.83 | 5,040.90 | 1,294.59 | N/A |
| On-site Construction Mobile Sources (trucks / cars) | 0.00 | 0.00 | 0.00 | 7.97E-06 | 3.09E-06 | 2.84E-06 | 0.85 | 0.10 | N/A | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.40 | 0.39 | N/A | 0.73 | 0.05 | 0.01 | 0.00 | 0.00 | 0.00 | 407.67 | 46.83 | N/A |
| Yearly Construction Total | 29.86 | 3.42 | 0.78 | 1.13E-01 | 1.05E-01 | 1.05E-01 | 19.37 | 4.00 | N/A | 297.71 | 33.68 | 7.65 | 1.16 | 1.04 | 1.03 | 220.15 | 47.53 | N/A | 20,232.44 | 2,253.54 | 507.51 | 81.42 | 69.49 | 69.06 | 15,345.80 | 3,400.04 | N/A |
| Flares | 3.74 | 3.74 | 0.75 | 4.91E+00 | 3.80E-01 | 3.80E-01 | N/A | N/A | N/A | 89.79 | 89.79 | 18.09 | 117.77 | 9.11 | 9.11 | N/A | N/A | N/A | 32,772.59 | 32,772.59 | 6,602.01 | 42,984.34 | 3,324.76 | 3,324.76 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.48 | 58.02 | 0.04 | 1.82E-01 | 4.69E-02 | 4.48E-02 | 4.29 | 1.14 | N/A | 2.59 | 580.08 | 0.41 | 1.81 | 0.46 | 0.44 | 38.27 | 10.18 | N/A | 808.95 | 180,984.81 | 128.23 | 565.19 | 144.67 | 138.41 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.55 | 0.01 | 1.06E-02 | 3.44E-03 | 3.29E-03 | 44.52 | 9.39 | N/A | 0.60 | 35.50 | 0.12 | 0.11 | 0.03 | 0.03 | 445.23 | 93.91 | N/A | 186.33 | 11,074.74 | 36.49 | 33.10 | 10.72 | 10.25 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 10.65 | 66.10 | 0.97 | 5.12E+00 | 4.50E-01 | 4.48E-01 | 50.54 | 10.89 | N/A | 137.26 | 711.48 | 19.74 | 119.85 | 9.75 | 9.73 | 500.75 | 107.67 | N/A | 47,585.03 | 226,739.58 | 7,118.73 | 43,634.72 | 3,525.71 | 3,518.98 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **46.43** | **70.19** | **23.69** | **5.25** | **0.58** | **0.57** | **71.53** | **15.65** | **3.08** | **450.37** | **746.91** | **550.80** | **121.05** | **10.84** | **10.82** | **725.12** | **157.17** | **74.00** | **72,622.26** | **229,539.12** | **170,927.04** | **43,728.31** | **3,612.04** | **3,604.89** | **172,408.55** | **37,507.56** | **23,088.00** |

**Year: 2042**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.57 | 3.57 | 0.72 | 4.68 | 0.36 | 0.36 | N/A | N/A | N/A | 85.63 | 85.63 | 17.25 | 112.31 | 8.69 | 8.69 | N/A | N/A | N/A | 31,254.52 | 31,254.52 | 6,296.20 | 40,993.24 | 3,170.75 | 3,170.75 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.48 | 56.98 | 0.04 | 0.18 | 0.05 | 0.05 | 4.29 | 1.14 | N/A | 2.60 | 569.63 | 0.42 | 1.81 | 0.48 | 0.46 | 38.27 | 10.18 | N/A | 810.79 | 177,723.46 | 130.39 | 565.55 | 150.04 | 143.53 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.50 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.60 | 34.97 | 0.12 | 0.11 | 0.04 | 0.03 | 445.23 | 93.91 | N/A | 186.07 | 10,909.12 | 36.37 | 33.12 | 10.92 | 10.45 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 10.48 | 64.83 | 0.93 | 4.90E+00 | 4.35E-01 | 4.32E-01 | 50.54 | 10.89 | N/A | 133.11 | 696.33 | 18.91 | 114.40 | 9.35 | 9.33 | 500.75 | 107.67 | N/A | 46,068.53 | 221,794.53 | 6,814.96 | 41,644.00 | 3,377.27 | 3,370.29 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.40** | **65.51** | **22.88** | **4.91** | **0.46** | **0.45** | **52.16** | **11.64** | **3.08** | **148.51** | **698.08** | **542.31** | **114.44** | **9.40** | **9.38** | **504.97** | **109.64** | **74.00** | **50,873.33** | **222,340.53** | **170,115.76** | **41,656.17** | **3,394.11** | **3,387.14** | **157,062.75** | **34,107.52** | **23,088.00** |

**Year: 2043**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.39 | 3.39 | 0.68 | 4.45 | 0.34 | 0.34 | N/A | N/A | N/A | 81.47 | 81.47 | 16.41 | 106.86 | 8.27 | 8.27 | N/A | N/A | N/A | 29,736.44 | 29,736.44 | 5,990.38 | 39,002.14 | 3,016.74 | 3,016.74 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.48 | 55.30 | 0.05 | 0.18 | 0.05 | 0.05 | 4.29 | 1.14 | N/A | 2.62 | 552.87 | 0.43 | 1.81 | 0.50 | 0.48 | 38.27 | 10.18 | N/A | 816.17 | 172,494.28 | 133.88 | 565.53 | 157.22 | 150.41 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.41 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.60 | 34.11 | 0.12 | 0.11 | 0.04 | 0.03 | 445.23 | 93.91 | N/A | 186.14 | 10,641.16 | 36.43 | 33.12 | 11.23 | 10.74 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 10.30 | 62.90 | 0.90 | 4.67E+00 | 4.19E-01 | 4.17E-01 | 50.54 | 10.89 | N/A | 128.97 | 674.56 | 18.09 | 108.94 | 8.95 | 8.93 | 500.75 | 107.67 | N/A | 44,555.91 | 214,779.32 | 6,512.69 | 39,652.87 | 3,230.75 | 3,223.45 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.22** | **63.57** | **22.84** | **4.68** | **0.44** | **0.44** | **52.16** | **11.64** | **3.08** | **144.37** | **676.31** | **541.49** | **108.98** | **9.00** | **8.98** | **504.97** | **109.64** | **74.00** | **49,360.71** | **215,325.32** | **169,813.49** | **39,665.04** | **3,247.60** | **3,240.30** | **157,062.75** | **34,107.52** | **23,088.00** |

**Year: 2044**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.23 | 3.23 | 0.65 | 4.23 | 0.33 | 0.33 | N/A | N/A | N/A | 77.44 | 77.44 | 15.60 | 101.57 | 7.86 | 7.86 | N/A | N/A | N/A | 28,265.80 | 28,265.80 | 5,694.13 | 37,073.26 | 2,867.55 | 2,867.55 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.48 | 52.03 | 0.05 | 0.18 | 0.05 | 0.05 | 4.29 | 1.14 | N/A | 2.66 | 520.14 | 0.45 | 1.81 | 0.54 | 0.52 | 38.27 | 10.18 | N/A | 828.55 | 162,283.54 | 140.24 | 564.88 | 168.81 | 161.50 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.24 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.60 | 32.43 | 0.12 | 0.11 | 0.04 | 0.04 | 445.23 | 93.91 | N/A | 186.44 | 10,119.55 | 36.59 | 33.09 | 11.72 | 11.21 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 10.14 | 59.29 | 0.87 | 4.45E+00 | 4.06E-01 | 4.04E-01 | 50.54 | 10.89 | N/A | 124.98 | 636.13 | 17.30 | 103.65 | 8.58 | 8.56 | 500.75 | 107.67 | N/A | 43,097.95 | 202,576.34 | 6,222.95 | 37,723.32 | 3,093.64 | 3,085.81 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **16.06** | **59.96** | **22.81** | **4.46** | **0.43** | **0.42** | **52.16** | **11.64** | **3.08** | **140.38** | **637.88** | **540.70** | **103.69** | **8.63** | **8.61** | **504.97** | **109.64** | **74.00** | **47,902.75** | **203,122.34** | **169,523.75** | **37,735.49** | **3,110.48** | **3,102.66** | **157,062.75** | **34,107.52** | **23,088.00** |

**Chiquita Canyon Landfill EIR**

**Summary Construction and Operation Emissions**

Controlled Emissions

**Year: 2045**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 3.06 | 3.06 | 0.62 | 4.02 | 0.31 | 0.31 | N/A | N/A | N/A | 73.54 | 73.54 | 14.81 | 96.46 | 7.46 | 7.46 | N/A | N/A | N/A | 26,842.61 | 26,842.61 | 5,407.42 | 35,206.61 | 2,723.16 | 2,723.16 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.49 | 48.26 | 0.05 | 0.18 | 0.06 | 0.06 | 4.29 | 1.14 | N/A | 2.71 | 482.45 | 0.48 | 1.81 | 0.58 | 0.56 | 38.27 | 10.18 | N/A | 846.15 | 150,523.38 | 148.61 | 564.13 | 181.75 | 173.88 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 3.05 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.60 | 30.50 | 0.12 | 0.11 | 0.04 | 0.04 | 445.23 | 93.91 | N/A | 187.01 | 9,517.28 | 36.86 | 33.05 | 12.26 | 11.73 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 9.98 | 55.16 | 0.84 | 4.23E+00 | 3.94E-01 | 3.91E-01 | 50.54 | 10.89 | N/A | 121.14 | 592.61 | 16.54 | 98.54 | 8.23 | 8.20 | 500.75 | 107.67 | N/A | 41,692.92 | 188,790.70 | 5,944.89 | 35,855.88 | 2,962.74 | 2,954.33 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **15.90** | **55.84** | **22.78** | **4.25** | **0.41** | **0.41** | **52.16** | **11.64** | **3.08** | **136.54** | **594.36** | **539.94** | **98.58** | **8.28** | **8.26** | **504.97** | **109.64** | **74.00** | **46,497.72** | **189,336.70** | **169,245.69** | **35,868.05** | **2,979.59** | **2,971.18** | **157,062.75** | **34,107.52** | **23,088.00** |

**Year: 2046**

| | Emissions (lb/hr) | | | | | | | | | Emissions (lb/day) | | | | | | | | | | Emissions (lb/yr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emission Activity** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** | **CO** | **NOx** | **ROG** | **SOx** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Exhaust** | **$PM_{10}$ Fugitive** | **$PM_{2.5}$ Fugitive** | **Ammonia** |
| Construction (exhaust / fugitive from earth moving/service | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-site Construction Mobile Sources (trucks / cars) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Yearly Construction Total | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Flares | 2.90 | 2.90 | 0.58 | 3.81 | 0.29 | 0.29 | N/A | N/A | N/A | 69.64 | 69.64 | 14.03 | 91.34 | 7.07 | 7.07 | N/A | N/A | N/A | 25,419.41 | 25,419.41 | 5,120.72 | 33,339.95 | 2,578.78 | 2,578.78 | N/A | N/A | N/A |
| Landfill gas | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Operation (exhaust / fugitive from earth moving) | 6.37 | 0.79 | 0.16 | 0.02 | 0.02 | 0.02 | 1.72 | 0.36 | N/A | 44.29 | 6.11 | 1.13 | 0.17 | 0.15 | 0.15 | 17.25 | 3.59 | N/A | 13,817.16 | 1,907.44 | 352.00 | 52.09 | 45.56 | 45.56 | 4,895.28 | 1,018.22 | N/A |
| Off-site Operational Mobile Sources (trucks / cars) | 0.49 | 43.82 | 0.05 | 0.18 | 0.06 | 0.06 | 4.29 | 1.14 | N/A | 2.80 | 438.03 | 0.51 | 1.81 | 0.63 | 0.60 | 38.27 | 10.18 | N/A | 872.28 | 136,664.87 | 160.27 | 563.22 | 196.26 | 187.76 | 11,940.23 | 3,175.44 | N/A |
| On-site Operational Mobile Sources (trucks / cars) | 0.06 | 2.82 | 0.01 | 0.01 | 0.00 | 0.00 | 44.52 | 9.39 | N/A | 0.60 | 28.22 | 0.12 | 0.11 | 0.04 | 0.04 | 445.23 | 93.91 | N/A | 188.04 | 8,804.35 | 37.33 | 33.01 | 12.86 | 12.30 | 138,910.47 | 29,299.65 | N/A |
| Yearly Operational Total | 9.82 | 50.33 | 0.81 | 4.02E+00 | 3.82E-01 | 3.79E-01 | 50.54 | 10.89 | N/A | 117.33 | 542.00 | 15.79 | 93.42 | 7.88 | 7.85 | 500.75 | 107.67 | N/A | 40,296.89 | 172,796.08 | 5,670.32 | 33,988.27 | 2,833.46 | 2,824.41 | 155,745.99 | 33,493.31 | N/A |
| On-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Off-Site Compost Facility Construction Sources | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| On-Site Compost Facility Operation Sources | 5.92 | 0.67 | 0.15 | 0.02 | 0.02 | 0.02 | 1.62 | 0.76 | N/A | 15.40 | 1.75 | 0.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | N/A | 4,804.80 | 546.00 | 124.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | N/A |
| Compost Process Emissions | N/A | N/A | 21.79 | N/A | N/A | N/A | N/A | N/A | 3.08 | N/A | N/A | 523.00 | N/A | N/A | N/A | N/A | N/A | 74.00 | N/A | N/A | 163,176.00 | N/A | N/A | N/A | N/A | N/A | 23,088.00 |
| Yearly Compost Total | 5.92 | 0.67 | 21.95 | 1.50E-02 | 2.08E-02 | 2.08E-02 | 1.62 | 0.76 | 3.08 | 15.40 | 1.75 | 523.40 | 0.04 | 0.05 | 0.05 | 4.22 | 1.97 | 74.00 | 4,804.80 | 546.00 | 163,300.80 | 12.17 | 16.85 | 16.85 | 1,316.76 | 614.20 | 23,088.00 |
| **Yearly Total** | **15.75** | **51.01** | **22.75** | **4.04** | **0.40** | **0.40** | **52.16** | **11.64** | **3.08** | **132.73** | **543.75** | **539.19** | **93.46** | **7.94** | **7.91** | **504.97** | **109.64** | **74.00** | **45,101.69** | **173,342.08** | **168,971.12** | **34,000.44** | **2,850.31** | **2,841.25** | **157,062.75** | **34,107.52** | **23,088.00** |

## Summary Data Request

## Construction

**Sources included in the proposed project:**

| | *Schedule* | *Notes and Assumptions* |
|---|---|---|
| ***Construction Sources / Assumptions (See Construction Tab for information provided by CCL - for rows 6-12)*** | | |
| Construction of module 6 | 4/1/2017 - 9/30/2017 | Construction equipment assumptions based on data provided on July 20, 2011 and included in construction tab (attached). Since construction contractors would be large operators of diesel off-road equipment, all off-road diesel equipment would be compliant with CARB requirements at the time of construction. After 2020, all off-road diesel equipment would meet Tier 4 Final emission standards. When there are inconsistencies associated with the # and type of equipment for the activities (i.e. water truck should be used for the entire project duration, need a paver for paving activities), the project specific data provided have been supplemented with the appropriate equipment for consistency. The total area for the proposed lateral expansion is 142.7 acres as per Figure 2-1, Existing and Proposed Landfill footprint. Schedule information provided by CCL team via email from Brenda Eells/CH2M on 8/13/15 (CCL - construction operation schedule and information.msg). |
| Construction of module 7 | 4/1/2021 - 9/30/2021 | |
| Construction of module 8 | 4/1/2025 - 9/30/2025 | |
| Construction of module 9 | 4/1/2029 - 9/30/2029 | |
| Construction of module 10 | 4/1/2033 - 9/30/2033 | |
| Construction of module 11 | 4/1/2037 - 9/30/2037 | |
| Construction of module 12 | 4/1/2041 - 9/30/2041 | |
| | | |
| ***New Entrance Area and Construction*** | | |
| Construction of new paved road entrance | **10 days** | **Area paved: 1.5 miles long from entrance into landfill - assumes an average road width of 20 feet wide for total area to be paved of approximately 8 acres**. Note: we have modified the equipment provided to include a paver based on the construction of the paved entrance. **2 weeks to pave road** |
| Other Construction Activities (Construction of parking, administration building, larger berm, and scale house) | 4/1/2018 - 9/30/2018 | Size and volumes were estimated from site plans. Approximate size of buildings: 22,925 square feet. Approximate area to be paved for parking: 116,875 square feet (~2.7 acres). Approximate volume of soil to be cut / filled for construction of the berm 1,317,911 cubic feet. Air Quality team made assumptions regarding the type and number of equipment needed to build these buildings based on model default schedule and # of equipment. Assumed the berm material was excavated from onsite soil and not imported. Total area for new entrance (including new paved road): Approx. 30 acres (based on maps and estimated areas) -> provided by CCL team via email from Brenda Eells/CH2M on 8/13/15 (CCL - construction operation schedule and information.msg). |

| | | |
|---|---|---|
| ***Construction Truck Trips (See Construction Tab for information provided by CCL - also taken from previous analysis)*** | | |
| Construction employees: Data provided on 07/20/2011 will be used instead of what is provided in project description which indicates 100 daily construction workers and is not schedule specific | Corresponds with construction module schedule | 40 workers for module construction, 10 workers for new entrance construction, workers for other construction activities based on AQ model to generate default # of construction workers for other construction activities based on size of buildings. All construction worker travel would be offsite on paved roads and is about 20 miles one-way (including 3 miles from the interstate to the facility entrance). |
| Onsite pickup trucks: | | Based on previous data provided it is assumed that an onsite truck travels about 1.25 miles / hr (~10 miles in an 8 hr day). Based on previous data 20% of that travel is on paved roads and 80% is on unpaved roads. Based on data provided on construction tab (07/20/2011) indicating that the truck would operate 4hrs / day: each truck would travel ~1 mile on paved roads and ~4 miles on unpaved roads per day. |
| Other construction equipment: | | Additional travel other than equipment operation is minimal and not included in analysis. |

## Summary Data Request

## Operation

| *Operational Sources / Assumptions:* | *Schedule* | *Notes and Assumptions* |
|---|---|---|
| Landfill operational emissions based on disposal capacity: Total from build out (89.3 total - 23.2 from existing facility) = 66.1 MMCY spread out over construction of 7 new modules = 9.44 MMCY per module increase. | Emissions calculated for all years during which construction and operation would overlap. | ***Source of Data - Based on data provided by Golder Associates (04/2011 , updated 03/2015)***<br><br>Annual LFG recovery rate will be 85% with implementation of project BMPs (SCS, 2016a), therefore it is assumed that 85% of the LFG will be combusted by the flares and 15% will be fugitive. The fugitive landfill emissions will be calculated using the LFG generation for each year, the amount not recovered (15%), and emission factors for CH4 and CO2 based on the 2011 % concentration (50 / 50%) and the toxic pollutants based on the landfill source test data.<br>For air dispersion modeling the source characteristics will be chosen so that they are representative of the landfill area. (representative data will be used) |

| | | |
|---|---|---|
| **Operation of 2 additional flares (Source: Golder Associates 09/16)** | | ***The project does not include the operation of the existing two flares. The operating schedule is based Golder Associates 09/16 LFG report*** |
| Flare 1 Location: (UTM NAD 83, Zone 11): **348,900 Easting, 3,811,085 Northing (meters)** | | Flare emissions: **Flare emission rates (lbs/dscf) from the Flare 2 2012 source test (report dated 02/16/12) will be used to represent the emissions associated with the two new flares.** |
| Flare 2 Location (UTM NAD 83, Zone 11): **348,888 Easting, 3,811,078 Northing (meters)** | | Flare Stack parameters (temperature, flow rate, stack diameter): Based on SCAQMD records and source test results for the existing flares (height 50 feet, diameter 12 feet, exhaust temperature 1,596.4 F, exhaust velocity 15.6 feet per second) |

| *Operation Assumptions (See Operation Tab for information provided by CCL - also taken from previous analysis)* | *Schedule* | *Notes and Assumptions* |
|---|---|---|
| Operation Workers: includes 22 new staff - **Source: Project Description, Table 2-5 (dated October 3, 2016)** | Ramp-up: 2017-2023<br>Full Operation: 2024 | Assumes operation of the Proposed Project would ramp up evenly over a seven year period starting January 1, 2017, with full operation beginning January 1, 2024. This assumes that the new equipment and employees will be used to operate the additional capacity from the existing landfill.**(Air Quality Assumption)** |
| Operation Onsite Off-road Equipment: **Source Data Provided 7-20-11: Project description data inconsistent and less specific, therefore it is not used: (***18 new pieces of equipment (two motor graders, three bulldozers, three landfill compactors, two scrapers, two water trucks, five trailer-mounted light plants, and one water wagon* ) | Ramp-up: 2017-2023<br>Full Operation: 2024 | Assumes operation of the Proposed Project would ramp up evenly over a seven year period starting January 1, 2017, with full operation beginning January 1, 2024. Approximate hours of use for each piece of equipment are based on data provided on July 20, 2011 and are included in the operation tab (attached).***All equipment used for operation of the proposed project would meet Tier 4 Final emission standards. Note that the values provided are different that what is included in the project description - Air Quality Team will use specific data provided on 7-20-11 unless otherwise indicated.*** |

## Summary Data Request

| *Operational Waste Deliveries Assumptions* | | *Schedule* | *Notes and Assumptions* |
|---|---|---|---|
| Truck Trips | | | All truck deliveries will start at the beginning of the operation of the project and will continue at the same rate for the duration of the project. **All distances are roundtrip.** |
| Average Operational Truck deliveries (from Project Description: Tables 2-5 in the Project Description dated 10/03/16): [1] | | Net increase in number of vehicles | **Waste Trucks**: Onsite travel on paved roads: 4 miles, Onsite travel on unpaved roads (gravel): 0.568 miles (3,000 ft RT from end of paved road to working face); road paved as much as possible as project control. Offsite travel on paved roads: 90.6 miles for transfer trucks and 28.2 miles for collection trucks. |
| | HHDT | 234 | **Onsite service truck**: Operate 4hrs per day which equates to 5 miles traveled total (~1 miles on paved and 4 miles on unpaved roads - same assumption as for construction service trucks. |
| | MHDT | 158 | **Offsite vehicle travel** (employees, waste trucks): 40 miles on paved roads (Includes 6 miles on paved roads from the interstate) |
| | LHDT2 | 0 | Total duration of waste truck idling time is 3.5 min. |
| | LDT2 | 0 | ***Assumes operation of the Proposed Project would ramp up evenly over a seven year period starting January 1, 2017, with full operation beginning January 1, 2024.*** |
| | LDT1 | 0 | |
| | LDA | 22 | |

***Sources not a part of the proposed project and not included in the evaluation:***

Operation of 2 existing flares
Operation of the waste to energy generation unit.

*Notes:*

[1] *Per EMFAC Users guide truck classification is as follows: HHDT (33001 - 60000), MHDT (14001 - 33000), LHDT2 (100001 - 14000), LHDT1 (8501 - 10000), LDT2 (3751- 5750), LDT1 (0 - 3750), LDA (all passenger cars))*

## Methodology Assumptions:

The project would include mitigation measures to reduce fugitive dust emissions during construction and operation.
Total annual project emissions are compared to the SCAQMD emission thresholds
Mitigation measures are used whenever the annual project emissions exceed the SCAQMD daily thresholds
Annual construction and operation emissions estimated for each year of construction activity.

## Chiquita Canyon Landfill EIR

**Summary of Construction and Operation Sources Used in LST and Criteria Modeling**

| Source Group | Name of Source(s) In AERMOD | Source Type | Number of Sources | Source Area ($m^2$) | Description of Sources |
|---|---|---|---|---|---|
| Flares | FLARE(1-2) | Point | 2 | N/A | Landfill Gas Flares |
| Module 11 Operation Exhaust | M11_(001-153) | Point | 153 | N/A | Offroad Construction Equipment and Truck Exhaust |
| Module 12 Construction Exhaust | M12_(001-108) | Point | 108 | N/A | Offroad Operational Equipment and Truck Exhaust |
| Composting Operation Exhaust | COMP_(001-268) | Point | 268 | N/A | Offroad Composting Equipment and Truck Exhaust |
| Truck Idle | IDLE_(01-22) | Point | 22 | N/A | Waste Collection Truck Exhaust |
| Onsite Paved Roads | OSP_OP(18-44) | Volume | 27 | N/A | Exhaust and Fugitive Emissions From On-site Paved Road Travel |
| Onsite Unpaved Roads | OSU_(0002-0016) | Volume | 15 | N/A | Exhaust and Fugitive Emissions From On-site Unpaved Road Travel |
| Module 11 Operation Fugitive Dust | MODULE11 | Area | 1 | 96,261 | Offroad Construction Fugitive Dust |
| Module 12 Construction Fugitive Dust | MODULE12 | Area | 1 | 67,074 | Offroad Operational Fugitive Dust |
| Composting Operation Fugitive Dust | COMP | Area | 1 | 166,005 | Offroad Composting Fugitive Dust |

## Chiquita Canyon Landfill EIR

**Summary of Construction and Operation Emissions Used in LST and Criteria Modeling**

| | Emissions (pound per hour total for all sources) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Point/Volume Sources** | **1-hr CO** | **8-hr CO** | **1-hr $NO_2$** | **Annual $NO_2$** | **1-hr $SO_2$** | **3-hr $SO_2$** | **24-hr $SO_2$** | **24-hr $PM_{10}$** | **Annual $PM_{10}$** | **24-hr $PM_{2.5}$** | **Annual $PM_{2.5}$** |
| Flares | 3.95 | 3.95 | 3.95 | 3.95 | 5.18 | 5.18 | 5.18 | 0.40 | 0.40 | 0.40 | 0.40 |
| Module 11 Operation Exhaust | 6.37 | 6.37 | 0.79 | 0.22 | 0.023 | 0.023 | 0.0070 | 0.0061 | 0.0052 | 0.0061 | 0.0052 |
| Module 12 Construction Exhaust | 29.4 | 29.4 | 3.4 | 0.24 | 0.110 | 0.110 | 0.044 | 0.041 | 0.007 | 0.041 | 0.007 |
| Composting Operation Exhaust | 5.92 | 5.92 | 0.67 | 0.06 | 0.015 | 0.015 | 0.0016 | 0.002 | 0.002 | 0.002 | 0.002 |
| Truck Idle | 3.33E-02 | 3.33E-02 | 5.82E-01 | 2.07E-01 | 3.44E-04 | 3.44E-04 | 1.43E-04 | 3.27E-04 | 2.79E-04 | 3.13E-04 | 2.67E-04 |
| Onsite Paved Roads | 2.32E-02 | 2.32E-02 | 2.60E+00 | 9.25E-01 | 8.99E-03 | 8.99E-03 | 3.75E-03 | 1.41E+01 | 1.21E+01 | 3.47E+00 | 2.97E+00 |
| Onsite Unpaved Roads | 3.29E-03 | 3.29E-03 | 3.69E-01 | 1.31E-01 | 1.28E-03 | 1.28E-03 | 5.32E-04 | 4.43E+00 | 3.78E+00 | 4.43E-01 | 3.79E-01 |

| | Emissions (pounds per hour) | | | |
|---|---|---|---|---|
| **Area Sources** | **24-hr $PM_{10}$** | **Annual $PM_{10}$** | **24-hr $PM_{2.5}$** | **Annual $PM_{2.5}$** |
| Module 11 Operation Fugitive Dust | 0.72 | 0.15 | 0.56 | 0.12 |
| Module 12 Construction Fugitive Dust | 7.42 | 1.53 | 1.18 | 0.24 |
| Composting Operation Fugitive Dust | 0.18 | 0.08 | 0.15 | 0.07 |

| | Emissions (gram per second per source) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Point/Volume Sources** | **1-hr CO** | **8-hr CO** | **1-hr $NO_2$** | **Annual $NO_2$** | **1-hr $SO_2$** | **3-hr $SO_2$** | **24-hr $SO_2$** | **24-hr $PM_{10}$** | **Annual $PM_{10}$** | **24-hr $PM_{2.5}$** | **Annual $PM_{2.5}$** |
| Flares | 2.49E-01 | 2.49E-01 | 2.49E-01 | 2.49E-01 | 3.26E-01 | 3.26E-01 | 3.26E-01 | 2.52E-02 | 2.52E-02 | 2.52E-02 | 2.52E-02 |
| Module 11 Operation Exhaust | 5.24E-03 | 5.24E-03 | 6.52E-04 | 1.79E-04 | 1.86E-05 | 1.86E-05 | 5.73E-06 | 5.01E-06 | 4.28E-06 | 5.01E-06 | 4.28E-06 |
| Module 12 Construction Exhaust | 3.42E-02 | 3.42E-02 | 3.95E-03 | 2.80E-04 | 1.28E-04 | 1.28E-04 | 5.09E-05 | 4.82E-05 | 8.55E-06 | 4.82E-05 | 8.55E-06 |
| Composting Operation Exhaust | 2.78E-03 | 2.78E-03 | 3.16E-04 | 2.93E-05 | 7.05E-06 | 7.05E-06 | 7.64E-07 | 1.06E-06 | 9.04E-07 | 1.06E-06 | 9.04E-07 |
| Truck Idle | 1.90E-04 | 1.90E-04 | 3.34E-03 | 1.19E-03 | 1.97E-06 | 1.97E-06 | 8.21E-07 | 1.87E-06 | 1.60E-06 | 1.79E-06 | 1.53E-06 |
| Onsite Paved Roads | 1.08E-04 | 1.08E-04 | 1.21E-02 | 4.32E-03 | 4.20E-05 | 4.20E-05 | 1.75E-05 | 6.59E-02 | 5.64E-02 | 1.62E-02 | 1.38E-02 |
| Onsite Unpaved Roads | 2.76E-05 | 2.76E-05 | 3.10E-03 | 1.10E-03 | 1.07E-05 | 1.07E-05 | 4.47E-06 | 3.72E-02 | 3.18E-02 | 3.72E-03 | 3.18E-03 |

| | Emissions (grams per second per square meter) | | | |
|---|---|---|---|---|
| **Area Sources** | **24-hr $PM_{10}$** | **Annual $PM_{10}$** | **24-hr $PM_{2.5}$** | **Annual $PM_{2.5}$** |
| Module 11 Operation Fugitive Dust | 9.41E-07 | 7.31E-07 | 1.96E-07 | 1.52E-07 |
| Module 12 Construction Fugitive Dust | 1.39E-05 | 2.21E-06 | 2.88E-06 | 4.52E-07 |
| Composting Operation Fugitive Dust | 1.33E-07 | 1.14E-07 | 6.23E-08 | 5.32E-08 |

## HARP Area sources

| Module | Area Source Size ($m^2$) | AERMOD Input |
|---|---|---|
| Module 6 | 60,278.88 | 1.65896E-05 |
| Module 7 | 71,055.57 | 1.40735E-05 |
| Module 8 | 47,837.00 | 2.09043E-05 |
| Module 9 | 117,479.77 | 8.5121E-06 |
| Module 10 | 110,803.29 | 9.025E-06 |
| Module 11 | 96,260.55 | 1.03885E-05 |
| Module 12 | 67,073.74 | 1.4909E-05 |
| Main | 716,292.38 | 1.39608E-06 |
| Compost - 2039 | 166005.43 | 6.0239E-06 |

| 2039 Total active landfill area | 30 year average Total active landfill area |
|---|---|
| 1,220,007.44 | 1,287,081.18 |

Note:
Each area source was modeled as 1/area
Long term compost emissions are allocated evenly over the entire landfill footprint

| | | 30 year average | |
|---|---|---|---|
| **Diesel PM Exhaust Emissions** | **# of sources** | **lb/hr** | **lb/yr** |
| Compost Operation | Added to modules | No DPM health values for acute health index | 8.120E-03 |
| Compost Construction | Added to modules | | 1.160E-02 |
| | | | |
| Main Landfill Operation | 1146 | | 2.788E-02 |
| Module 6 Operation | 101 | | 2.788E-02 |
| Module 6 Construction | 101 | | 5.554E-01 |
| **Module 6 Total** | | | **5.833E-01** |
| Module 7 Operation | 115 | | 2.788E-02 |
| Module 7 Construction | 115 | | 3.022E-02 |
| **Module 7 Total** | | | **5.810E-02** |
| Module 8 Operation | 81 | | 2.788E-02 |
| Module 8 Construction | 81 | | 3.803E-02 |
| **Module 8 Total** | | | **6.591E-02** |
| Module 9 Operation | 176 | | 2.788E-02 |
| Module 9 Construction | 176 | | 2.376E-02 |
| **Module 9 Total** | | | **5.164E-02** |
| Module 10 Operation | 193 | | 2.788E-02 |
| Module 10 Construction | 193 | | 2.269E-02 |
| **Module 10 Total** | | | **5.057E-02** |
| Module 11 Operation | 155 | | 2.788E-02 |
| Module 11 (construction) | 155 | | 2.541E-02 |
| **Module 11 Total** | | | **5.329E-02** |
| Module 12 (operation) | 108 | | 2.788E-02 |
| Module 12 (construction) | 108 | | 3.142E-02 |
| **Module 12 Total** | | | **5.930E-02** |
| Operation Onsite unpaved | 15 | | 7.667E-02 |
| Construction Onsite unpaved | 15 | | 9.030E-05 |
| **Total Onsite Unpaved** | | | **7.676E-02** |
| Operation Onsite paved | 27 | | 2.999E-01 |
| Construction Onsite paved | 27 | | 1.254E-05 |
| **Total Onsite Paved** | | | **3.000E-01** |
| Compost Construction Offsite | 150 | | 5.152E-04 |
| Operation Offsite | 150 | | 8.152E-02 |
| Construction Offsite | 150 | | 2.335E-03 |
| **Total Offsite** | | | **8.437E-02** |
| Idle | 22 | | 1.292E-01 |
| Entrance Construction | 22 | | 7.262E-01 |
| **Entrance Total** | | | **8.554E-01** |

Note:
Each individual source was modeled in 1 g/s in AERMOD. Emissions were divided by number of individual sources per source group
Onsite emissions are unpaved source group (OSUP) plus onsite paved (OSP)
Onsite compost operation/construction emissions are allocated over the entire facility
Long term emissions are based on a 30 year average
Diesel PM exhaust does not have acute values therefore short term emissions were not included

**HARP Emissions**

| | Short Term 2039; Long Term 30 year average | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Compost | | Flare | | Per Flare | | Total Operation LFG | | Main Landfill | | Module 6 | | Module 7 | | Module 8 | | Module 9 | | Module 10 | | Module 11 | | Module 12 | |
| | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year | lb/hr | lb/year |
| Hydrogen sulfide 2 | 0 | 0 | 6.317E-04 | 3.591E+00 | 3.158E-04 | 1.796 | 8.421E-01 | 6247.1 | 4.944E-01 | 3477 | 4.161E-02 | 292.6 | 4.905E-02 | 344.9 | 3.302E-02 | 232.2 | 8.109E-02 | 570.2 | 7.648E-02 | 537.8 | 6.645E-02 | 467.2 | 0 | 325.6 |
| Benzene 2 | 0 | 0 | 5.791E-06 | 3.293E-02 | 2.896E-06 | 0.01646 | 9.741E-02 | 722.6 | 5.719E-02 | 402.1 | 4.813E-03 | 33.84 | 5.673E-03 | 39.89 | 3.819E-03 | 26.86 | 9.380E-03 | 65.95 | 8.847E-03 | 62.21 | 7.685E-03 | 54.04 | 0 | 37.66 |
| Benzylchloride 2 | 0 | 0 | 1.760E-05 | 1.000E-01 | 8.798E-06 | 0.05002 | 9.228E-03 | 68.46 | 5.418E-03 | 38.10 | 4.559E-04 | 3.206 | 5.375E-04 | 3.779 | 3.618E-04 | 2.544 | 8.886E-04 | 6.248 | 8.381E-04 | 5.893 | 7.281E-04 | 5.120 | 0 | 3.567 |
| Chlorobenzene 2 | 0 | 0 | 1.043E-05 | 5.931E-02 | 5.216E-06 | 0.02965 | 6.910E-03 | 51.26 | 4.057E-03 | 28.53 | 3.414E-04 | 2.401 | 4.025E-04 | 2.830 | 2.710E-04 | 1.905 | 6.654E-04 | 4.679 | 6.276E-04 | 4.413 | 5.452E-04 | 3.834 | 0 | 2.671 |
| Dichlorobenzene 2 | 0 | 0 | 2.725E-05 | 1.549E-01 | 1.362E-05 | 0.07746 | 3.407E-02 | 252.7 | 2.000E-02 | 140.6 | 1.683E-03 | 11.84 | 1.984E-03 | 13.95 | 1.336E-03 | 9.393 | 3.281E-03 | 23.07 | 3.094E-03 | 21.76 | 2.688E-03 | 18.90 | 0 | 13.17 |
| 31,1-Dichloroethane 2 | 0 | 0 | 9.172E-06 | 5.215E-02 | 4.586E-06 | 0.02607 | 6.076E-03 | 45.07 | 3.567E-03 | 25.08 | 3.002E-04 | 2.111 | 3.539E-04 | 2.488 | 2.382E-04 | 1.675 | 5.851E-04 | 4.114 | 5.518E-04 | 3.880 | 4.794E-04 | 3.371 | 0 | 2.349 |
| 1,2-Dichloroethane 2 | 0 | 0 | 9.171E-06 | 5.214E-02 | 4.586E-06 | 0.02607 | 1.526E-02 | 113.2 | 8.962E-03 | 63.02 | 7.542E-04 | 5.303 | 8.890E-04 | 6.251 | 5.985E-04 | 4.209 | 1.470E-03 | 10.34 | 1.386E-03 | 9.748 | 1.204E-03 | 8.469 | 0 | 5.901 |
| 1,1-Dichloroethylene 2 | 0 | 0 | 8.984E-06 | 5.108E-02 | 4.492E-06 | 0.02554 | 5.951E-03 | 44.15 | 3.494E-03 | 24.57 | 2.940E-04 | 2.068 | 3.466E-04 | 2.437 | 2.334E-04 | 1.641 | 5.731E-04 | 4.030 | 5.405E-04 | 3.801 | 4.696E-04 | 3.302 | 0 | 2.301 |
| Dichloromethane 2 | 0 | 0 | 1.679E-05 | 9.548E-02 | 8.397E-06 | 0.04774 | 2.112E-02 | 156.7 | 1.240E-02 | 87.19 | 1.043E-03 | 7.337 | 1.230E-03 | 8.649 | 8.281E-04 | 5.823 | 2.034E-03 | 14.30 | 1.918E-03 | 13.49 | 1.666E-03 | 11.72 | 0 | 8.164 |
| 1,2-dibromoethane 2 | 0 | 0 | 1.741E-05 | 9.899E-02 | 8.705E-06 | 0.04949 | 1.153E-02 | 85.56 | 6.771E-03 | 47.61 | 5.698E-04 | 4.007 | 6.717E-04 | 4.723 | 4.522E-04 | 3.180 | 1.111E-03 | 7.809 | 1.047E-03 | 7.365 | 9.100E-04 | 6.399 | 0 | 4.459 |
| Perchloroethene 2 | 0 | 0 | 1.229E-05 | 6.990E-02 | 6.147E-06 | 0.03495 | 3.519E-02 | 261.0 | 2.066E-02 | 145.3 | 1.739E-03 | 12.22 | 2.049E-03 | 14.41 | 1.380E-03 | 9.701 | 3.388E-03 | 23.83 | 3.196E-03 | 22.47 | 2.776E-03 | 19.52 | 0 | 13.60 |
| Carbon tetrachloride 2 | 0 | 0 | 1.140E-05 | 6.484E-02 | 5.702E-06 | 0.03242 | 8.263E-03 | 61.30 | 4.851E-03 | 34.11 | 4.083E-04 | 2.871 | 4.812E-04 | 3.384 | 3.240E-04 | 2.278 | 7.957E-04 | 5.595 | 7.505E-04 | 5.277 | 6.520E-04 | 4.584 | 0 | 3.194 |
| Toluene 2 | 0 | 0 | 3.307E-05 | 1.880E-01 | 1.654E-05 | 0.09401 | 9.262E-01 | 6871 | 5.438E-01 | 3824 | 4.576E-02 | 321.8 | 5.394E-02 | 379.3 | 3.632E-02 | 255.4 | 8.919E-02 | 627.1 | 8.412E-02 | 591.5 | 7.308E-02 | 513.9 | 0 | 358.0 |
| 1,1,1-trichloroethane 2 | 0 | 0 | 9.891E-06 | 5.623E-02 | 4.945E-06 | 0.02812 | 7.166E-03 | 53.16 | 4.207E-03 | 29.58 | 3.541E-04 | 2.490 | 4.174E-04 | 2.935 | 2.810E-04 | 1.976 | 6.900E-04 | 4.852 | 6.508E-04 | 4.576 | 5.654E-04 | 3.976 | 0 | 2.770 |
| Trichloroethene 2 | 0 | 0 | 9.742E-06 | 5.539E-02 | 4.871E-06 | 0.02769 | 7.059E-03 | 52.36 | 4.144E-03 | 29.14 | 3.488E-04 | 2.452 | 4.111E-04 | 2.891 | 2.768E-04 | 1.946 | 6.797E-04 | 4.779 | 6.411E-04 | 4.508 | 5.569E-04 | 3.916 | 0 | 2.729 |
| Chloroform 2 | 0 | 0 | 8.851E-06 | 5.032E-02 | 4.426E-06 | 0.02516 | 6.413E-03 | 47.57 | 3.765E-03 | 26.47 | 3.169E-04 | 2.228 | 3.735E-04 | 2.626 | 2.515E-04 | 1.768 | 6.175E-04 | 4.342 | 5.824E-04 | 4.095 | 5.060E-04 | 3.558 | 0 | 2.479 |
| Vinyl chloride 2 | 0 | 0 | 5.792E-06 | 3.293E-02 | 2.896E-06 | 0.01647 | 3.357E-03 | 24.91 | 1.971E-03 | 13.86 | 1.659E-04 | 1.166 | 1.955E-04 | 1.375 | 1.316E-04 | 0.926 | 3.233E-04 | 2.273 | 3.049E-04 | 2.144 | 2.649E-04 | 1.863 | 0 | 1.298 |
| m-Xylene 2 | 0 | 0 | 9.839E-06 | 5.594E-02 | 4.919E-06 | 0.02797 | 5.132E-01 | 3807 | 3.013E-01 | 2119 | 2.536E-02 | 178.3 | 2.989E-02 | 210.2 | 2.012E-02 | 141.5 | 4.942E-02 | 347.5 | 4.661E-02 | 327.8 | 4.050E-02 | 284.8 | 0 | 198.4 |
| o+p-Xylene 2 | 0 | 0 | 9.839E-06 | 5.594E-02 | 4.919E-06 | 0.02797 | 1.479E-01 | 1097 | 8.681E-02 | 610.4 | 7.306E-03 | 51.37 | 8.612E-03 | 60.56 | 5.798E-03 | 40.77 | 1.424E-02 | 100.1 | 1.343E-02 | 94.43 | 1.167E-02 | 82.04 | 0 | 57.16 |
| **Total Xylenes** | 0 | 0 | **1.968E-05** | **1.119E-01** | **9.839E-06** | **0.05594** | **6.611E-01** | **4904** | **3.882E-01** | **2729** | **3.266E-02** | **229.7** | **3.850E-02** | **270.7** | **2.592E-02** | **182.3** | **6.366E-02** | **447.6** | **6.004E-02** | **422.2** | **5.216E-02** | **366.8** | **0** | **255.6** |
| Ammonia | 3.08 | | 0 | 0 | 0 | 0 | 0 | 23,088 | 0 | 12849 | 0 | 1081 | 0 | 1275 | 0 | 858.1 | 0 | 2107 | 0 | 1988 | | 1727 | 0 | 1203 |

Notes:

1-g= 0.0022 lb

Short term LFG/Flares emissions are based on 2039 (the maxiumum flare emissions year) following the LST methodology

Long term LFG/Flares emissions are based on 30 year average

## Chiquita Canyon Landfill EIR

**Compost Facility Emissions - Construction and Operation**

### Source

Supplemental Air Quality Impact Assessment for Chiquita Landfill Compost Operation. SCS Engineers. November, 2016. (SCS, 2016b)

### Assumptions:

| | | |
|---|---|---|
| **Construction Schedule:** | 8 | hrs/day |
| Paving | 80 | days/year |
| Grading | 80 | days/year |
| Site Preparation | 80 | days/year |

Note: Phase duration based on May-August compost construction schedule provided by CCL and 5 working days per week. Conservatively assumes all phases would occur for the entire 4 months.

| | | |
|---|---|---|
| **Operation Schedule:** | 2.6 | hrs/day (Equipment) |
| | 24 | hrs/day (Process) |
| | 6 | days/week |
| | 52 | weeks/year |

**Process Emissions (2019 - 2046)**

| Scenario | Process Rate | VOC EF | Uncontrolled VOC Emissions | Controlled VOC Emissions | Ammonia EF | Uncontrolled Ammonia Emissions | Controlled Ammonia Emissions |
|---|---|---|---|---|---|---|---|
| | (tpd) | (lb/ton processed) | (lb/day) | (lb/day) | (lb/ton processed) | (lb/day) | (lb/day) |
| Greater than 10% Foodwaste | 560 | 4.67 | 2,615 | 523 | 0.66 | 370 | 74 |
| Less than 10% Foodwaste | 560 | 4.67 | 2,615 | 1,663 | 0.66 | 370 | 318 |

**Operation Emissions (2019-2046)**

| | Exhaust Emissions (lbs/day) | | | | | | Fugitive Emissions (lbs/day) | |
|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | PM10 | PM2.5 | PM10 | PM2.5 |
| On-Site Operation Sources | 15.4 | 1.75 | 0.4 | 0.039 | 0.054 | 0.054 | 4.2204 | 1.9686 |

Note: Off-site vechicle travel associated with operation of the compost facility is included with off-site vehicle travel for landfill operation.

**Construction Emissions**

**2019**

| | Exhaust Emissions (lbs/day) | | | | | | Fugitive Emissions (lbs/day) | |
|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | PM10 | PM2.5 | PM10 | PM2.5 |
| Paving On-Site Sources | 14.3652 | 14.9353 | 1.4259 | 0.0223 | 0.8094 | 0.7447 | 0 | 0 |
| Paving Off-Site Sources | 0.9678 | 0.0773 | 0.0515 | 0.00284 | 0.00169 | 0.00157 | 0.2258 | 0.0599 |
| Grading On-Site Sources | 40.2888 | 54.1978 | 4.8912 | 0.0617 | 2.5049 | 2.3045 | 2.1683 | 0.8991 |
| Grading Off-Site Sources | 1.2903 | 0.103 | 0.0687 | 0.00378 | 0.00226 | 0.00209 | 0.301 | 0.0798 |
| Site Prep On-Site Sources | 34.8088 | 42.5046 | 4.0188 | 0.0391 | 2.1505 | 1.9784 | 4.5166 | 2.4827 |
| Site Prep Off-Site Sources | 1.1613 | 0.0927 | 0.0618 | 0.00341 | 0.00203 | 0.00188 | 0.2709 | 0.0719 |
| Maximum Day On-Site | 89.4628 | 111.6377 | 10.3359 | 0.1231 | 5.4648 | 5.0276 | 6.6849 | 3.3818 |
| Maximum Day Off-Site | 3.4194 | 0.273 | 0.182 | 0.01003 | 0.00598 | 0.00554 | 0.7977 | 0.2116 |

Note: Maximum daily emissions assume all phases could overlap.

**2028 & 2038**

| | Exhaust Emissions (lbs/day) | | | | | | Fugitive Emissions (lbs/day) | |
|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | PM10 | PM2.5 | PM10 | PM2.5 |
| Paving On-Site Sources | 16.9276 | 1.1895 | 0.2745 | 0.0223 | 0.0366 | 0.0366 | 0 | 0 |
| Paving Off-Site Sources | 0.9024 | 0.0717 | 0.0482 | 0.00284 | 0.00168 | 0.00156 | 0.2258 | 0.0599 |
| Grading On-Site Sources | 34.7787 | 3.2778 | 0.7564 | 0.0617 | 0.1009 | 0.1009 | 2.1081 | 0.8926 |
| Grading Off-Site Sources | 1.2032 | 0.0956 | 0.0642 | 0.00378 | 0.00224 | 0.00208 | 0.301 | 0.0798 |
| Site Prep On-Site Sources | 21.2415 | 2.0615 | 0.4757 | 0.0391 | 0.0634 | 0.0634 | 4.5166 | 2.4827 |
| Site Prep Off-Site Sources | 1.0829 | 0.086 | 0.0578 | 0.00341 | 0.00202 | 0.00187 | 0.2709 | 0.0719 |
| Grading On-Site Sources | 72.9478 | 6.5288 | 1.5066 | 0.1231 | 0.2009 | 0.2009 | 6.6247 | 3.3753 |
| Grading Off-Site Sources | 3.1885 | 0.2533 | 0.1702 | 0.01003 | 0.00594 | 0.00551 | 0.7977 | 0.2116 |

Note: Maximum daily emissions assume all phases could overlap.

**Chiquita Canyon Landfill EIR**
**Mobile Sources**

**Assumptions:**
40 workers for module construction and 20 workers for new entrance construction (new entrance construction includes construction of the admin building, scale house, and berm).
Operation of the Proposed Project would ramp up evenly over a seven year period starting January 1, 2017, with full operation beginning in 2024. Number of vehicles for 2017-2023 have been calculated by scaling an additional 1/7 for each conescutive year of the ramp up.
All distances are roundtrip.
Worker commute is 40 miles on paved roads (includes 6 miles on paved roads from the interstate).
Travel Offsite, including Along Landfill travel, was assumed to occur on paved roads only.
Travel On-site was assumed to occur on both paved and unpaved roads.
One mile of onsite unpaved road traveled by waste trucks from the end of the onsite paved road to the dump site would be paved as a project control.

| | Construction | Construction | Operation | Operation | Operation | Operation | Operation | Operation | Operation | Operation | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Operating Schedule:** | Entrance Construction | Module Construction | Module Operation | Module | Module | Module | Module | Module | Module | Module | | | | | |
| Duration | 2018 | 2017/2021/2025/2029/2033/2037/2041 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024-2046 | | | | | |
| Employee Commute Hours [1] | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | | | |
| weeks/yr | 24 | 24 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | | | | | |
| days/week | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | | | | | |
| hrs/day | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | **RT Travel Offsite (miles/day)** | | **RT Travel On-site (miles/day)** | | **Operation** |
| **On Road Vehicles:** | **# / day (ea)** | **# / day (ea)** | **# / day (ea)** | **# / day (ea)** | **# / day (ea)** | **# / day (ea)** | **# / day (ea)** | **# / day (ea)** | **# / day (ea)** | **# / day (ea)** | **Along** | **Total Offsite** | **Paved** | **Gravel** | **(hrs/day)** |
| Employees (LDA) | 20 | 40 | 3 | 6 | 9 | 13 | 16 | 19 | 22 | 22 | 6 | 40 | 0 | 0 | 2 |
| Onsite Service Truck (LDT1) [2] | 8 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 10 |
| Waste Trucks (HHDT) [3] | NA | NA | 33 | 67 | 100 | 134 | 167 | 201 | 234 | 234 | 6 | 90.6 | 4 | 0.568 | 10 |
| Waste Trucks (MHDT) [3] | NA | NA | 23 | 45 | 68 | 90 | 113 | 135 | 158 | 158 | 6 | 28.2 | 4 | 0.568 | 10 |
| Waste Trucks (LHDT2) [3] | NA | NA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 28.2 | 4 | 0.568 | 10 |
| Waste Trucks (LDT2) [3] | NA | NA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 28.2 | 4 | 0.568 | 10 |
| Entrance Gate Idle Time for Trucks [4] | NA | NA | 56 | 112 | 168 | 224 | 280 | 336 | 392 | 392 | 0.0 | 0 | 0.058 | 0 | 10 |

Operation Emission Calculations
**Emission Calculations**
Operation Year: 2017
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation Year | Emission Factor Unit | CO | NOx | ROG | SOx | PM$_{10}$ Exhaust | PM$_{2.5}$ Exhaust | CO$_2$ | CH$_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Employees (LDA) | Passenger Cars | 5 | 2017 | lb/VMT | 2.01E-03 | 1.67E-04 | 4.27E-05 | 5.78E-06 | 3.37E-06 | 3.10E-06 | 5.76E-01 | 1.43E-05 |
| Onsite Service Truck (LDT1) | Light-Light Duty Trucks | 5 | 2017 | lb/VMT | 5.34E-03 | 4.88E-04 | 1.33E-04 | 6.79E-06 | 7.19E-06 | 6.63E-06 | 6.72E-01 | 4.19E-05 |
| Waste Trucks (HHDT) | Heavy-Heavy Duty Trucks | 5 | 2017 | lb/VMT | 2.96E-05 | 3.18E-02 | 3.30E-06 | 8.12E-05 | 2.66E-05 | 2.54E-05 | 8.52E+00 | 1.53E-07 |
| Waste Trucks (MHDT) | Medium-Heavy Duty Trucks | 5 | 2017 | lb/VMT | 9.30E-04 | 8.45E-03 | 2.69E-04 | 2.42E-05 | 1.47E-04 | 1.41E-04 | 2.54E+00 | 1.25E-05 |
| Waste Trucks (LHDT2) | Light-Heavy Duty Trucks | 5 | 2017 | lb/VMT | 2.23E-03 | 6.09E-04 | 7.89E-05 | 1.68E-05 | 2.13E-06 | 1.96E-06 | 1.68E+00 | 3.10E-05 |
| Waste Trucks (LDT2) | Light-Duty Trucks | 5 | 2017 | lb/VMT | 2.64E-03 | 2.81E-04 | 5.45E-05 | 7.74E-06 | 3.32E-06 | 3.05E-06 | 7.71E-01 | 1.89E-05 |
| Truck Idle | Truck Idle | 2 | 2017 | lb/hr | 1.65E-02 | 2.32E-01 | 4.38E-03 | 1.46E-04 | 6.88E-04 | 6.59E-04 | 1.53E+01 | 2.03E-04 |

| Fugitive from Road Travel - Controlled | | | | | | | |
|---|---|---|---|---|---|---|---|
| **All VMT [5]** | | **Offsite VMT (Paved)** | | **Onsite VMT (Paved)** | | **Onsite VMT (Unpaved)** | |
| **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 2.15E-04 | 7.82E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 3.14E-04 | 1.30E-04 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 2.14E-04 | 8.87E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| NA | NA | NA | NA | NA | NA | NA | NA |

Operation Emission Calculations
**Emission Calculations**
Operation Year: 2018
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation Year | Emission Factor Unit | CO | NOx | ROG | SOx | PM$_{10}$ Exhaust | PM$_{2.5}$ Exhaust | CO$_2$ | CH$_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Employees (LDA) | Passenger Cars | 5 | 2018 | lb/VMT | 1.80E-03 | 1.47E-04 | 3.43E-05 | 5.62E-06 | 3.34E-06 | 3.08E-06 | 5.60E-01 | 1.26E-05 |
| Onsite Service Truck (LDT1) | Light-Light Duty Trucks | 5 | 2018 | lb/VMT | 4.64E-03 | 4.23E-04 | 9.97E-05 | 6.63E-06 | 6.58E-06 | 6.05E-06 | 6.57E-01 | 3.67E-05 |
| Waste Trucks (HHDT) | Heavy-Heavy Duty Trucks | 5 | 2018 | lb/VMT | 2.97E-05 | 3.16E-02 | 3.43E-06 | 8.12E-05 | 2.64E-05 | 2.52E-05 | 8.51E+00 | 1.59E-07 |
| Waste Trucks (MHDT) | Medium-Heavy Duty Trucks | 5 | 2018 | lb/VMT | 7.83E-04 | 7.33E-03 | 2.24E-04 | 2.42E-05 | 1.16E-04 | 1.11E-04 | 2.54E+00 | 1.04E-05 |
| Waste Trucks (LHDT2) | Light-Heavy Duty Trucks | 5 | 2018 | lb/VMT | 1.87E-03 | 5.34E-04 | 6.61E-05 | 1.67E-05 | 2.03E-06 | 1.87E-06 | 1.67E+00 | 2.60E-05 |
| Waste Trucks (LDT2) | Light-Duty Trucks | 5 | 2018 | lb/VMT | 2.32E-03 | 2.40E-04 | 4.45E-05 | 7.52E-06 | 3.28E-06 | 3.02E-06 | 7.50E-01 | 1.65E-05 |
| Truck Idle | Truck Idle | 2 | 2018 | lb/hr | 1.65E-02 | 2.32E-01 | 4.32E-03 | 1.46E-04 | 6.75E-04 | 6.46E-04 | 1.53E+01 | 2.01E-04 |

| Fugitive from Road Travel - Controlled | | | | | | | |
|---|---|---|---|---|---|---|---|
| **All VMT [5]** | | **Offsite VMT (Paved)** | | **Onsite VMT (Paved)** | | **Onsite VMT (Unpaved)** | |
| **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 2.15E-04 | 7.82E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 3.14E-04 | 1.30E-04 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 1.98E-03 | 8.87E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| NA | NA | NA | NA | NA | NA | NA | NA |

Operation Emission Calculations
**Emission Calculations**
Operation Year: 2019
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation Year | Emission Factor Unit | CO | NOx | ROG | SOx | PM$_{10}$ Exhaust | PM$_{2.5}$ Exhaust | CO$_2$ | CH$_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Employees (LDA) | Passenger Cars | 5 | 2019 | lb/VMT | 1.63E-03 | 1.31E-04 | 2.81E-05 | 5.46E-06 | 3.34E-06 | 3.07E-06 | 5.45E-01 | 1.13E-05 |
| Onsite Service Truck (LDT1) | Light-Light Duty Trucks | 5 | 2019 | lb/VMT | 4.17E-03 | 3.78E-04 | 8.39E-05 | 6.47E-06 | 6.19E-06 | 5.70E-06 | 6.42E-01 | 3.29E-05 |
| Waste Trucks (HHDT) | Heavy-Heavy Duty Trucks | 5 | 2019 | lb/VMT | 2.96E-05 | 3.14E-02 | 3.58E-06 | 8.11E-05 | 2.60E-05 | 2.49E-05 | 8.51E+00 | 1.66E-07 |
| Waste Trucks (MHDT) | Medium-Heavy Duty Trucks | 5 | 2019 | lb/VMT | 6.99E-04 | 6.45E-03 | 1.98E-04 | 2.41E-05 | 9.77E-05 | 9.35E-05 | 2.53E+00 | 9.18E-06 |
| Waste Trucks (LHDT2) | Light-Heavy Duty Trucks | 5 | 2019 | lb/VMT | 1.56E-03 | 4.67E-04 | 5.50E-05 | 1.65E-05 | 1.95E-06 | 1.79E-06 | 1.65E+00 | 2.16E-05 |
| Waste Trucks (LDT2) | Light-Duty Trucks | 5 | 2019 | lb/VMT | 2.06E-03 | 2.07E-04 | 3.69E-05 | 7.31E-06 | 3.27E-06 | 3.01E-06 | 7.29E-01 | 1.46E-05 |
| Truck Idle | Truck Idle | 2 | 2019 | lb/hr | 1.64E-02 | 2.34E-01 | 4.24E-03 | 1.46E-04 | 6.55E-04 | 6.27E-04 | 1.53E+01 | 1.97E-04 |

| Fugitive from Road Travel - Controlled | | | | | | | |
|---|---|---|---|---|---|---|---|
| **All VMT [5]** | | **Offsite VMT (Paved)** | | **Onsite VMT (Paved)** | | **Onsite VMT (Unpaved)** | |
| **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 2.15E-04 | 7.82E-05 | 1.21E-03 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 3.14E-04 | 1.30E-04 | 1.21E-03 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 2.14E-04 | 8.87E-05 | 1.21E-03 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| NA | NA | NA | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

Construction Emission Calculations
**Module Construction**
Construction Year: 2033
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit | CO | NOx | ROG | SOx | PM$_{10}$ Exhaust | PM$_{2.5}$ Exhaust | CO$_2$ | CH$_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Employees (LDA) | Passenger Cars | 5 | 2033 | lb/VMT | 7.90E-04 | 4.99E-05 | 9.36E-06 | 3.85E-06 | 2.04E-06 | 1.88E-06 | 3.85E-01 | 3.78E-06 |
| Onsite Service Truck (LDT1) | Light-Light Duty Trucks | 5 | 2033 | lb/VMT | 1.18E-03 | 8.31E-05 | 1.73E-05 | 4.40E-06 | 2.49E-06 | 2.29E-06 | 4.39E-01 | 7.00E-06 |

| Fugitive from Road Travel - Controlled | | | | | | | |
|---|---|---|---|---|---|---|---|
| **All VMT [5]** | | **Offsite VMT (Paved)** | | **Onsite VMT (Paved)** | | **Onsite VMT (Unpaved)** | |
| **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |

Construction Emission Calculations
**Module Construction**
Construction Year: 2037
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit | CO | NOx | ROG | SOx | PM$_{10}$ Exhaust | PM$_{2.5}$ Exhaust | CO$_2$ | CH$_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Employees (LDA) | Passenger Cars | 5 | 2037 | lb/VMT | 6.84E-04 | 4.28E-05 | 7.44E-06 | 3.70E-06 | 1.63E-06 | 1.50E-06 | 3.70E-01 | 3.00E-06 |
| Onsite Service Truck (LDT1) | Light-Light Duty Trucks | 5 | 2037 | lb/VMT | 8.75E-04 | 5.93E-05 | 1.12E-05 | 4.14E-06 | 1.88E-06 | 1.73E-06 | 4.13E-01 | 4.52E-06 |

| Fugitive from Road Travel - Controlled | | | | | | | |
|---|---|---|---|---|---|---|---|
| **All VMT [5]** | | **Offsite VMT (Paved)** | | **Onsite VMT (Paved)** | | **Onsite VMT (Unpaved)** | |
| **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |

Construction Emission Calculations
**Module Construction**
Construction Year: 2041
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit | CO | NOx | ROG | SOx | PM$_{10}$ Exhaust | PM$_{2.5}$ Exhaust | CO$_2$ | CH$_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Employees (LDA) | Passenger Cars | 5 | 2041 | lb/VMT | 6.32E-04 | 3.98E-05 | 6.65E-06 | 3.63E-06 | 1.37E-06 | 1.26E-06 | 3.63E-01 | 2.69E-06 |
| Onsite Service Truck (LDT1) | Light-Light Duty Trucks | 5 | 2041 | lb/VMT | 7.59E-04 | 4.93E-05 | 8.73E-06 | 3.99E-06 | 1.54E-06 | 1.42E-06 | 3.98E-01 | 3.53E-06 |

| Fugitive from Road Travel - Controlled | | | | | | | |
|---|---|---|---|---|---|---|---|
| **All VMT [5]** | | **Offsite VMT (Paved)** | | **Onsite VMT (Paved)** | | **Onsite VMT (Unpaved)** | |
| **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** | **PM$_{10}$** | **PM$_{2.5}$** |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |
| 9.87E-05 | 3.91E-05 | 1.21E-03 | 2.98E-04 | 2.16E-01 | 5.30E-02 | 4.77E-01 | 4.77E-02 |

*Reference: Data Provided by Mike Dean on 7-20-2011 to Brenda Eells via e-mail. Schedule information provided by CCL team via email from Brenda Eells/CH2M on 8/13/15 (CCL - construction operation schedule and information.msg).*
*Average operational truck deliveries taken from Table 2-5 in the Project Description dated 10/03/16.*

[1] Assume that total commute occurs over 1 hr in the morning and 1 hr in the evening.
[2] Onsite service trucks: Operate 4 hrs per day which equates to 5 miles traveled total (~1 mile on paved roads and 4 miles on unpaved roads, which is the same assumption as for construction service trucks).
[3] Total truck travel distance is 90.6 miles for transfer trucks and 28.2 miles for collection trucks.
[4] Assume Idle EF for HHDT for all trucks and idle time is 3.5 minutes.
[5] Includes emissions from tire and brake wear.
[6] The total hourly, total daily, and total annual emissions are calculated assuming all vehicles are used at the same time.

## Chiquita Canyon Landfill EIR
**Construction Emissions - Proposed Project Exhaust Emissions**

### Assumptions: [1]

| | | |
|---|---|---|
| Construction Schedule: | 4 | weeks/month |
| | 5 | days/week |
| | 10 | hrs/day |

Additional travel other than equipment operation is minimal and not included in this analysis.
Since construction contractors would be large operators of diesel off-road equipment, all off-road diesel equipment would be compliant with CARB requirements at the time of construction.
After 2020, all off-road diesel construction equipment would meet Tier 4 Final emission standards.

### *Entrance Construction*

| | | | |
|---|---|---|---|
| Construction Period: | 4/1/2018 | to | 9/30/2018 |
| Number of workers: [2] | 20 | Duration (weeks): | 24 |

| Off Road Equipment Type | Number (ea) | Daily Hours | Annual Days Equipment Used [3] |
|---|---|---|---|
| ***Demolition*** | | | |
| Scraper - CAT 657 | 6 | 10 | 12 |
| Water Truck - 4000 gal, 3 axle, 58000 gvw | 2 | 8 | 12 |
| ***Site Preparation*** | | | |
| Bulldozer - CAT D9, D7 | 2 | 8 | 30 |
| Compactor - CAT 825/835 | 1 | 10 | 20 |
| Trailer Mounted Light Plant | 2 | 8 | 30 |
| Tractors/Loaders/Backhoes [4, 5] | 4 | 8 | 20 |
| Rubber Tired Dozers [4, 5] | 3 | 8 | 30 |
| Water Truck - 4000 gal, 3 axle, 58000 gvw | 2 | 8 | 30 |
| ***Grading*** | | | |
| Graders - CAT 14G | 2 | 8 | 12 |
| Backhoe/Loader - CAT 440 | 2 | 8 | 20 |
| Rubber Tired Dozers [4, 5] | 1 | 8 | 20 |
| Tractors/Loaders/Backhoes [4, 5] | 3 | 8 | 20 |
| Graders [4, 5] | 1 | 8 | 12 |
| Excavators [4, 5] | 1 | 8 | 12 |
| Water Truck - 4000 gal, 3 axle, 58000 gvw | 2 | 8 | 20 |
| ***Berm Construction*** [6] | | | |
| Grader | 1 | 6 | 62 |
| Tractors/Loaders/Backhoes | 1 | 6 | 62 |
| Rubber Tired Dozers | 1 | 7 | 62 |
| Soil Haul Trucks [7] | 5 | 8 | 62 |
| Water Truck - 4000 gal, 3 axle, 58000 gvw | 1 | 8 | 62 |
| ***Building Construction*** [4,8] | | | |
| Cranes | 1 | 4 | 48 |
| Forklifts | 2 | 6 | 48 |
| Tractors/Loaders/Backhoes | 2 | 8 | 48 |
| Water Truck - 4000 gal, 3 axle, 58000 gvw | 2 | 8 | 48 |
| ***Paving*** [9] | | | |
| Paver | 2 | 8 | 10 |
| Cement and Mortar Mixers | 1 | 8 | 10 |
| Rollers | 2 | 8 | 10 |
| Tractors/Loaders/Backhoes | 1 | 8 | 10 |
| Paving Equipment | 1 | 8 | 10 |

## Chiquita Canyon Landfill EIR
**Construction Emissions - Proposed Project Exhaust Emissions**

### *Entrance Construction*

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| ***Demolition*** | | | | |
| Scraper | Scrapers | 1 | 2018 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| ***Site Preparation*** | | | | |
| Bulldozer | Rubber Tired Dozers | 1 | 2018 | lb/hr |
| Compactor | Plate Compactors | 1 | 2018 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2018 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| ***Grading*** | | | | |
| Graders | Graders | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Graders | Graders | 1 | 2018 | lb/hr |
| Excavator | Excavators | 1 | 2018 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| ***Berm Construction*** | | | | |
| Graders | Graders | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2018 | lb/hr |
| Haul Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| ***Building Construction*** | | | | |
| Crane | Cranes | 1 | 2018 | lb/hr |
| Forklifts | Forklifts | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr |
| ***Paving*** | | | | |
| Paver | Pavers | 1 | 2018 | lb/hr |
| Cement and Mortar Mixer | Cement and Mortar Mixers | 1 | 2018 | lb/hr |
| Roller | Rollers | 1 | 2018 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2018 | lb/hr |
| Paving Equipment | Paving Equipment | 1 | 2018 | lb/hr |

**Chiquita Canyon Landfill EIR**
**Construction Emissions - Proposed Project**

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 9.16E-01 | 1.53E+00 | 2.46E-01 | 3.15E-03 | 7.07E-02 | 6.50E-02 | 3.21E+02 | 2.22E-02 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 1.03E+00 | 9.22E-01 | 2.53E-01 | 2.60E-03 | 7.87E-02 | 7.24E-02 | 2.65E+02 | 2.28E-02 |
| 2.63E-02 | 3.56E-02 | 5.02E-03 | 6.71E-05 | 1.23E-03 | 1.13E-03 | 4.31E+00 | 4.53E-04 |
| 4.69E-01 | 6.58E-01 | 6.42E-02 | 9.14E-04 | 3.33E-02 | 3.06E-02 | 7.79E+01 | 5.79E-03 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 1.03E+00 | 9.22E-01 | 2.53E-01 | 2.60E-03 | 7.87E-02 | 7.24E-02 | 2.65E+02 | 2.28E-02 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 7.29E-01 | 6.49E-01 | 1.06E-01 | 1.39E-03 | 3.85E-02 | 3.54E-02 | 1.24E+02 | 9.56E-03 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 1.03E+00 | 9.22E-01 | 2.53E-01 | 2.60E-03 | 7.87E-02 | 7.24E-02 | 2.65E+02 | 2.28E-02 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 7.29E-01 | 6.49E-01 | 1.06E-01 | 1.39E-03 | 3.85E-02 | 3.54E-02 | 1.24E+02 | 9.56E-03 |
| 6.64E-01 | 5.87E-01 | 8.24E-02 | 1.26E-03 | 2.64E-02 | 2.43E-02 | 1.12E+02 | 7.43E-03 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 7.29E-01 | 6.49E-01 | 1.06E-01 | 1.39E-03 | 3.85E-02 | 3.54E-02 | 1.24E+02 | 9.56E-03 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 1.03E+00 | 9.22E-01 | 2.53E-01 | 2.60E-03 | 7.87E-02 | 7.24E-02 | 2.65E+02 | 2.28E-02 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 2.52E-01 | 5.92E-01 | 7.87E-02 | 1.26E-03 | 2.12E-02 | 1.95E-02 | 1.12E+02 | 7.10E-03 |
| 2.12E-01 | 1.88E-01 | 2.65E-02 | 3.66E-04 | 1.08E-02 | 9.94E-03 | 3.12E+01 | 2.39E-03 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 5.58E-01 | 1.34E+00 | 1.66E-01 | 2.67E-03 | 3.51E-02 | 3.23E-02 | 2.72E+02 | 1.49E-02 |
| 7.63E-01 | 5.02E-01 | 1.37E-01 | 1.44E-03 | 5.39E-02 | 4.96E-02 | 1.28E+02 | 1.23E-02 |
| 3.86E-02 | 5.22E-02 | 7.36E-03 | 9.83E-05 | 1.82E-03 | 1.67E-03 | 6.32E+00 | 6.64E-04 |
| 3.92E-01 | 3.26E-01 | 6.80E-02 | 6.92E-04 | 3.41E-02 | 3.14E-02 | 5.90E+01 | 6.14E-03 |
| 3.43E-01 | 3.84E-01 | 4.35E-02 | 6.07E-04 | 1.84E-02 | 1.69E-02 | 5.17E+01 | 3.92E-03 |
| 5.97E-01 | 4.47E-01 | 1.06E-01 | 1.14E-03 | 4.24E-02 | 3.90E-02 | 1.01E+02 | 9.59E-03 |

***Entrance Construction***

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| ***Demolition*** | | | | | | | | | |
| Scraper | 5.499 | 9.194 | 1.475 | 0.019 | 0.424 | 0.390 | 1,929 | 0.133 | 54.988 |
| Water Truck | 1.116 | 2.681 | 0.331 | 0.005 | 0.070 | 0.065 | 545 | 0.030 | 8.925 |
| ***Site Preparation*** | | | | | | | | | |
| Bulldozer | 2.068 | 1.844 | 0.506 | 0.005 | 0.157 | 0.145 | 530 | 0.046 | 16.540 |
| Compactor | 0.026 | 0.036 | 0.005 | 0.000 | 0.001 | 0.001 | 4 | 0.000 | 0.263 |
| Trailer Mounted Light Plant | 0.939 | 1.316 | 0.128 | 0.002 | 0.067 | 0.061 | 156 | 0.012 | 7.511 |
| Backhoe/Loader | 1.370 | 1.535 | 0.174 | 0.002 | 0.073 | 0.068 | 207 | 0.016 | 10.964 |
| Bulldozer | 3.101 | 2.766 | 0.759 | 0.008 | 0.236 | 0.217 | 795 | 0.069 | 24.810 |
| Water Truck | 1.116 | 2.681 | 0.331 | 0.005 | 0.070 | 0.065 | 545 | 0.030 | 8.925 |
| ***Grading*** | | | | | | | | | |
| Graders | 1.459 | 1.297 | 0.212 | 0.003 | 0.077 | 0.071 | 248 | 0.019 | 11.671 |
| Backhoe/Loader | 0.685 | 0.767 | 0.087 | 0.001 | 0.037 | 0.034 | 103 | 0.008 | 5.482 |
| Bulldozer | 1.034 | 0.922 | 0.253 | 0.003 | 0.079 | 0.072 | 265 | 0.023 | 8.270 |
| Backhoe/Loader | 1.028 | 1.151 | 0.130 | 0.002 | 0.055 | 0.051 | 155 | 0.012 | 8.223 |
| Graders | 0.729 | 0.649 | 0.106 | 0.001 | 0.038 | 0.035 | 124 | 0.010 | 5.835 |
| Excavator | 0.664 | 0.587 | 0.082 | 0.001 | 0.026 | 0.024 | 112 | 0.007 | 5.313 |
| Water Truck | 1.116 | 2.681 | 0.331 | 0.005 | 0.070 | 0.065 | 545 | 0.030 | 8.925 |
| ***Berm Construction*** | | | | | | | | | |
| Graders | 0.729 | 0.649 | 0.106 | 0.001 | 0.038 | 0.035 | 124 | 0.010 | 4.376 |
| Backhoe/Loader | 0.343 | 0.384 | 0.043 | 0.001 | 0.018 | 0.017 | 52 | 0.004 | 2.056 |
| Bulldozer | 1.034 | 0.922 | 0.253 | 0.003 | 0.079 | 0.072 | 265 | 0.023 | 7.236 |
| Haul Truck | 2.789 | 6.702 | 0.828 | 0.013 | 0.176 | 0.162 | 1,362 | 0.075 | 22.314 |
| Water Truck | 0.558 | 1.340 | 0.166 | 0.003 | 0.035 | 0.032 | 272 | 0.015 | 4.463 |
| ***Building Construction*** | | | | | | | | | |
| Crane | 0.252 | 0.592 | 0.079 | 0.001 | 0.021 | 0.019 | 112 | 0.007 | 1.009 |
| Forklift | 0.424 | 0.377 | 0.053 | 0.001 | 0.022 | 0.020 | 62 | 0.005 | 2.541 |
| Backhoe/Loader | 0.685 | 0.767 | 0.087 | 0.001 | 0.037 | 0.034 | 103 | 0.008 | 5.482 |
| Water Truck | 1.116 | 2.681 | 0.331 | 0.005 | 0.070 | 0.065 | 545 | 0.030 | 8.925 |
| ***Paving*** | | | | | | | | | |
| Paver | 1.526 | 1.003 | 0.273 | 0.003 | 0.108 | 0.099 | 257 | 0.025 | 12.212 |
| Cement and Mortar Mixer | 0.039 | 0.052 | 0.007 | 0.000 | 0.002 | 0.002 | 6 | 0.001 | 0.309 |
| Roller | 0.784 | 0.651 | 0.136 | 0.001 | 0.068 | 0.063 | 118 | 0.012 | 6.270 |
| Backhoe/Loader | 0.343 | 0.384 | 0.043 | 0.001 | 0.018 | 0.017 | 52 | 0.004 | 2.741 |
| Paving Equipment | 0.597 | 0.447 | 0.106 | 0.001 | 0.042 | 0.039 | 101 | 0.010 | 4.777 |
| **Total [11]** | **14.073** | **21.871** | **3.300** | **0.045** | **0.951** | **0.875** | **4,548** | **0.298** | **109.459** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 91.938 | 14.750 | 0.189 | 4.242 | 3.903 | 19,286 | 1.331 | 659.859 | 1,103.255 | 176.999 | 2.272 | 50.903 | 46.830 | 231,429 | 15.970 |
| 21.447 | 2.650 | 0.043 | 0.562 | 0.517 | 4,357 | 0.239 | 107.106 | 257.359 | 31.798 | 0.513 | 6.742 | 6.203 | 52,288 | 2.869 |
| 14.752 | 4.049 | 0.042 | 1.259 | 1.158 | 4,238 | 0.365 | 496.206 | 442.547 | 121.471 | 1.248 | 37.766 | 34.744 | 127,139 | 10.960 |
| 0.356 | 0.050 | 0.001 | 0.012 | 0.011 | 43 | 0.005 | 5.268 | 7.129 | 1.004 | 0.013 | 0.246 | 0.226 | 863 | 0.091 |
| 10.525 | 1.027 | 0.015 | 0.533 | 0.490 | 1,247 | 0.093 | 225.323 | 315.738 | 30.803 | 0.439 | 15.987 | 14.708 | 37,416 | 2.779 |
| 12.279 | 1.392 | 0.019 | 0.587 | 0.540 | 1,655 | 0.126 | 219.278 | 245.574 | 27.832 | 0.388 | 11.749 | 10.809 | 33,106 | 2.511 |
| 22.127 | 6.074 | 0.062 | 1.888 | 1.737 | 6,357 | 0.548 | 744.308 | 663.820 | 182.207 | 1.872 | 56.648 | 52.117 | 190,708 | 16.440 |
| 21.447 | 2.650 | 0.043 | 0.562 | 0.517 | 4,357 | 0.239 | 267.765 | 643.396 | 79.495 | 1.283 | 16.855 | 15.506 | 130,720 | 7.173 |
| 10.377 | 1.695 | 0.022 | 0.616 | 0.567 | 1,983 | 0.153 | 140.047 | 124.520 | 20.335 | 0.268 | 7.390 | 6.799 | 23,793 | 1.835 |
| 6.139 | 0.696 | 0.010 | 0.294 | 0.270 | 828 | 0.063 | 109.639 | 122.787 | 13.916 | 0.194 | 5.874 | 5.404 | 16,553 | 1.256 |
| 7.376 | 2.025 | 0.021 | 0.629 | 0.579 | 2,119 | 0.183 | 165.402 | 147.516 | 40.490 | 0.416 | 12.589 | 11.581 | 42,380 | 3.653 |
| 9.209 | 1.044 | 0.015 | 0.441 | 0.405 | 1,241 | 0.094 | 164.459 | 184.181 | 20.874 | 0.291 | 8.812 | 8.107 | 24,829 | 1.883 |
| 5.188 | 0.847 | 0.011 | 0.308 | 0.283 | 991 | 0.076 | 70.024 | 62.260 | 10.167 | 0.134 | 3.695 | 3.400 | 11,896 | 0.917 |
| 4.697 | 0.659 | 0.010 | 0.211 | 0.195 | 898 | 0.059 | 63.751 | 56.370 | 7.909 | 0.121 | 2.537 | 2.334 | 10,773 | 0.714 |
| 21.447 | 2.650 | 0.043 | 0.562 | 0.517 | 4,357 | 0.239 | 178.510 | 428.931 | 52.997 | 0.855 | 11.236 | 10.338 | 87,147 | 4.782 |
| 3.891 | 0.635 | 0.008 | 0.231 | 0.212 | 744 | 0.057 | 271.342 | 241.258 | 39.398 | 0.519 | 14.319 | 13.173 | 46,099 | 3.555 |
| 2.302 | 0.261 | 0.004 | 0.110 | 0.101 | 310 | 0.024 | 127.456 | 142.740 | 16.177 | 0.226 | 6.829 | 6.283 | 19,243 | 1.460 |
| 6.454 | 1.771 | 0.018 | 0.551 | 0.507 | 1,854 | 0.160 | 448.652 | 400.136 | 109.830 | 1.128 | 34.146 | 31.415 | 114,955 | 9.910 |
| 53.616 | 6.625 | 0.107 | 1.405 | 1.292 | 10,893 | 0.598 | 1,383.451 | 3,324.214 | 410.724 | 6.629 | 87.082 | 80.116 | 675,388 | 37.059 |
| 10.723 | 1.325 | 0.021 | 0.281 | 0.258 | 2,179 | 0.120 | 276.690 | 664.843 | 82.145 | 1.326 | 17.416 | 16.023 | 135,078 | 7.412 |
| 2.370 | 0.315 | 0.005 | 0.085 | 0.078 | 449 | 0.028 | 48.410 | 113.743 | 15.103 | 0.242 | 4.068 | 3.743 | 21,535 | 1.363 |
| 2.260 | 0.318 | 0.004 | 0.130 | 0.119 | 375 | 0.029 | 121.974 | 108.497 | 15.248 | 0.211 | 6.222 | 5.724 | 17,986 | 1.376 |
| 6.139 | 0.696 | 0.010 | 0.294 | 0.270 | 828 | 0.063 | 263.134 | 294.689 | 33.398 | 0.466 | 14.099 | 12.971 | 39,727 | 3.013 |
| 21.447 | 2.650 | 0.043 | 0.562 | 0.517 | 4,357 | 0.239 | 428.424 | 1,029.434 | 127.192 | 2.053 | 26.967 | 24.810 | 209,152 | 11.476 |
| 8.027 | 2.184 | 0.023 | 0.863 | 0.794 | 2,053 | 0.197 | 122.120 | 80.268 | 21.840 | 0.231 | 8.631 | 7.941 | 20,526 | 1.971 |
| 0.418 | 0.059 | 0.001 | 0.015 | 0.013 | 51 | 0.005 | 3.087 | 4.178 | 0.589 | 0.008 | 0.145 | 0.134 | 506 | 0.053 |
| 5.212 | 1.088 | 0.011 | 0.546 | 0.502 | 944 | 0.098 | 62.696 | 52.115 | 10.881 | 0.111 | 5.456 | 5.020 | 9,438 | 0.982 |
| 3.070 | 0.348 | 0.005 | 0.147 | 0.135 | 414 | 0.031 | 27.410 | 30.697 | 3.479 | 0.049 | 1.469 | 1.351 | 4,138 | 0.314 |
| 3.577 | 0.850 | 0.009 | 0.339 | 0.312 | 808 | 0.077 | 47.771 | 35.766 | 8.500 | 0.091 | 3.392 | 3.121 | 8,082 | 0.767 |
| **190.371** | **28.017** | **0.391** | **7.419** | **6.825** | **39,623** | **2.528** | **7,249.561** | **11,327.960** | **1,712.800** | **23.597** | **479.271** | **440.930** | **2,342,891** | **154.543** |

### *Module 6-12: Excavation and Construction* [10]

Number of workers: 40 Duration (weeks): 24

| Equipment Type | Number (ea) | Daily Hours | Annual Days Equipment Used [3] |
|---|---|---|---|
| Scraper push/pull - CAT 657 [13] | 23 | 10 | 72 |
| Scraper elevating - CAT 623 | 2 | 10 | 10 |
| Bulldozer - large - CAT D9 | 2 | 8 | 60 |
| Bulldozer - large - CAT D7 | 2 | 8 | 60 |
| Bulldozer - small - CAT D3 | 1 | 8 | 30 |
| Compactor- CAT 825/835 [13] | 1 | 10 | 72 |
| Graders - 16G | 2 | 8 | 40 |
| Backhoe/Loader - CAT 416, 440 | 2 | 4 | 60 |
| Water Truck - 4,000 gal 3 axle 58,000 gvw | 3 | 10 | 72 |
| Water Wagon - CAT 631G 10,000 gal | 1 | 10 | 60 |
| Trailer Mounted Light Plant | 1 | 2 | 60 |
| Wheel tractor - Case 535 | 1 | 8 | 10 |
| Backhoe/Loader - CAT 416 | 1 | 8 | 20 |
| Loader - CAT 966 | 1 | 8 | 20 |
| Off road fork lift - CAT TH83 | 1 | 8 | 10 |

**Chiquita Canyon Landfill EIR**
**Construction Emissions - Proposed Project Exhaust Emissions**

### *Module 6: Excavation and Construction*

Construction Period: 4/1/2017 to 9/30/2017

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2017 | lb/hr |
| Scraper | Scrapers | 1 | 2017 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2017 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2017 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2017 | lb/hr |
| Compactor | Plate Compactors | 1 | 2017 | lb/hr |
| Graders | Graders | 1 | 2017 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2017 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2017 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2017 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2017 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2017 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2017 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2017 | lb/hr |
| Forklifts | Forklifts | 1 | 2017 | lb/hr |

### *Module 7: Excavation and Construction*

Construction Period: 4/1/2021 to 9/30/2021

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2021 | lb/hr |
| Scraper | Scrapers | 1 | 2021 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2021 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2021 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2021 | lb/hr |
| Compactor | Plate Compactors | 1 | 2021 | lb/hr |
| Graders | Graders | 1 | 2021 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2021 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2021 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2021 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2021 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2021 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2021 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2021 | lb/hr |
| Forklifts | Forklifts | 1 | 2021 | lb/hr |

### *Module 8: Excavation and Construction*

Construction Period: 4/1/2025 to 9/30/2025

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2025 | lb/hr |
| Scraper | Scrapers | 1 | 2025 | lb/hr |

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 9.60E-01 | 1.72E+00 | 2.59E-01 | 3.15E-03 | 7.77E-02 | 7.15E-02 | 3.21E+02 | 2.34E-02 |
| 9.60E-01 | 1.72E+00 | 2.59E-01 | 3.15E-03 | 7.77E-02 | 7.15E-02 | 3.21E+02 | 2.34E-02 |
| 1.10E+00 | 1.06E+00 | 2.66E-01 | 2.60E-03 | 8.49E-02 | 7.81E-02 | 2.65E+02 | 2.40E-02 |
| 1.10E+00 | 1.06E+00 | 2.66E-01 | 2.60E-03 | 8.49E-02 | 7.81E-02 | 2.65E+02 | 2.40E-02 |
| 1.10E+00 | 1.06E+00 | 2.66E-01 | 2.60E-03 | 8.49E-02 | 7.81E-02 | 2.65E+02 | 2.40E-02 |
| 2.63E-02 | 3.79E-02 | 5.02E-03 | 6.71E-05 | 1.23E-03 | 1.13E-03 | 4.31E+00 | 4.53E-04 |
| 7.30E-01 | 7.43E-01 | 1.14E-01 | 1.39E-03 | 4.29E-02 | 3.95E-02 | 1.24E+02 | 1.02E-02 |
| 3.44E-01 | 4.40E-01 | 4.77E-02 | 6.07E-04 | 2.17E-02 | 1.99E-02 | 5.17E+01 | 4.30E-03 |
| 5.68E-01 | 1.51E+00 | 1.75E-01 | 2.67E-03 | 3.97E-02 | 3.65E-02 | 2.72E+02 | 1.58E-02 |
| 5.68E-01 | 1.51E+00 | 1.75E-01 | 2.67E-03 | 3.97E-02 | 3.65E-02 | 2.72E+02 | 1.58E-02 |
| 4.73E-01 | 7.54E-01 | 7.25E-02 | 9.14E-04 | 3.81E-02 | 3.50E-02 | 7.79E+01 | 6.54E-03 |
| 3.44E-01 | 4.40E-01 | 4.77E-02 | 6.07E-04 | 2.17E-02 | 1.99E-02 | 5.17E+01 | 4.30E-03 |
| 3.44E-01 | 4.40E-01 | 4.77E-02 | 6.07E-04 | 2.17E-02 | 1.99E-02 | 5.17E+01 | 4.30E-03 |
| 3.44E-01 | 4.40E-01 | 4.77E-02 | 6.07E-04 | 2.17E-02 | 1.99E-02 | 5.17E+01 | 4.30E-03 |
| 2.13E-01 | 2.16E-01 | 2.87E-02 | 3.66E-04 | 1.28E-02 | 1.17E-02 | 3.12E+01 | 2.59E-03 |

### *Module 6: Excavation and Construction*

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 22.085 | 39.648 | 5.967 | 0.073 | 1.787 | 1.644 | 7,393 | 0.538 | 220.854 |
| Scraper | 1.920 | 3.448 | 0.519 | 0.006 | 0.155 | 0.143 | 643 | 0.047 | 19.205 |
| Bulldozer | 2.194 | 2.114 | 0.532 | 0.005 | 0.170 | 0.156 | 530 | 0.048 | 17.556 |
| Bulldozer | 2.194 | 2.114 | 0.532 | 0.005 | 0.170 | 0.156 | 530 | 0.048 | 17.556 |
| Bulldozer | 1.097 | 1.057 | 0.266 | 0.003 | 0.085 | 0.078 | 265 | 0.024 | 8.778 |
| Compactor | 0.026 | 0.038 | 0.005 | 0.000 | 0.001 | 0.001 | 4 | 0.000 | 0.263 |
| Graders | 1.460 | 1.487 | 0.227 | 0.003 | 0.086 | 0.079 | 248 | 0.020 | 11.682 |
| Backhoe/Loader | 0.688 | 0.879 | 0.095 | 0.001 | 0.043 | 0.040 | 103 | 0.009 | 2.753 |
| Water Truck | 1.703 | 4.524 | 0.526 | 0.008 | 0.119 | 0.110 | 817 | 0.047 | 17.029 |
| Water Wagon | 0.568 | 1.508 | 0.175 | 0.003 | 0.040 | 0.037 | 272 | 0.016 | 5.676 |
| Trailer Mounted Light Plant | 0.473 | 0.754 | 0.072 | 0.001 | 0.038 | 0.035 | 78 | 0.007 | 0.946 |
| Tractor | 0.344 | 0.440 | 0.048 | 0.001 | 0.022 | 0.020 | 52 | 0.004 | 2.753 |
| Backhoe/Loader | 0.344 | 0.440 | 0.048 | 0.001 | 0.022 | 0.020 | 52 | 0.004 | 2.753 |
| Loader | 0.344 | 0.440 | 0.048 | 0.001 | 0.022 | 0.020 | 52 | 0.004 | 2.753 |
| Forklift | 0.213 | 0.216 | 0.029 | 0.000 | 0.013 | 0.012 | 31 | 0.003 | 1.700 |
| **Total [12]** | **35.655** | **59.105** | **9.089** | **0.110** | **2.771** | **2.550** | **11,069** | **0.820** | **332.258** |

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.90E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.90E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.97E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.97E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.97E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 7.70E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 3.07E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.28E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.28E-02 |
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 4.11E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 3.07E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 3.07E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 3.07E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.87E-03 |

### *Module 7: Excavation and Construction*

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.436 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.038 | 16.855 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.039 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.039 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.020 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.015 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.006 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.038 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.013 | 7.372 |
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.004 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklift | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total [12]** | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.661** | **277.489** |

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |

### *Module 8: Excavation and Construction*

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.364 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.032 | 16.855 |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 396.482 | 59.672 | 0.726 | 17.865 | 16.436 | 73,929 | 5.384 | 15,901.456 | 28,546.732 | 4,296.409 | 52.246 | 1,286.282 | 1,183.379 | 5,322,856 | 387.658 |
| 34.477 | 5.189 | 0.063 | 1.553 | 1.429 | 6,429 | 0.468 | 192.047 | 344.767 | 51.889 | 0.631 | 15.535 | 14.292 | 64,286 | 4.682 |
| 16.910 | 4.256 | 0.042 | 1.359 | 1.250 | 4,238 | 0.384 | 1,053.345 | 1,014.619 | 255.371 | 2.496 | 81.513 | 74.992 | 254,278 | 23.042 |
| 16.910 | 4.256 | 0.042 | 1.359 | 1.250 | 4,238 | 0.384 | 1,053.345 | 1,014.619 | 255.371 | 2.496 | 81.513 | 74.992 | 254,278 | 23.042 |
| 8.455 | 2.128 | 0.021 | 0.679 | 0.625 | 2,119 | 0.192 | 263.336 | 253.655 | 63.843 | 0.624 | 20.378 | 18.748 | 63,569 | 5.760 |
| 0.379 | 0.050 | 0.001 | 0.012 | 0.011 | 43 | 0.005 | 18.965 | 27.302 | 3.615 | 0.048 | 0.884 | 0.814 | 3,106 | 0.326 |
| 11.895 | 1.817 | 0.022 | 0.687 | 0.632 | 1,983 | 0.164 | 467.288 | 475.810 | 72.666 | 0.892 | 27.480 | 25.282 | 79,310 | 6.557 |
| 3.517 | 0.382 | 0.005 | 0.173 | 0.159 | 414 | 0.034 | 165.204 | 211.040 | 22.902 | 0.291 | 10.396 | 9.564 | 24,829 | 2.066 |
| 45.239 | 5.260 | 0.080 | 1.191 | 1.096 | 8,170 | 0.475 | 1,226.070 | 3,257.194 | 378.690 | 5.774 | 85.754 | 78.894 | 588,241 | 34.169 |
| 15.080 | 1.753 | 0.027 | 0.397 | 0.365 | 2,723 | 0.158 | 340.575 | 904.776 | 105.192 | 1.604 | 23.821 | 21.915 | 163,400 | 9.491 |
| 1.507 | 0.145 | 0.002 | 0.076 | 0.070 | 156 | 0.013 | 56.740 | 90.446 | 8.697 | 0.110 | 4.572 | 4.206 | 9,354 | 0.785 |
| 3.517 | 0.382 | 0.005 | 0.173 | 0.159 | 414 | 0.034 | 27.534 | 35.173 | 3.817 | 0.049 | 1.733 | 1.594 | 4,138 | 0.344 |
| 3.517 | 0.382 | 0.005 | 0.173 | 0.159 | 414 | 0.034 | 55.068 | 70.347 | 7.634 | 0.097 | 3.465 | 3.188 | 8,276 | 0.689 |
| 3.517 | 0.382 | 0.005 | 0.173 | 0.159 | 414 | 0.034 | 55.068 | 70.347 | 7.634 | 0.097 | 3.465 | 3.188 | 8,276 | 0.689 |
| 1.727 | 0.230 | 0.003 | 0.102 | 0.094 | 250 | 0.021 | 17.003 | 17.267 | 2.299 | 0.029 | 1.021 | 0.940 | 2,498 | 0.207 |
| **563.131** | **86.283** | **1.047** | **25.974** | **23.896** | **105,932** | **7.785** | **20,893.043** | **36,334.094** | **5,536.029** | **67.483** | **1,647.813** | **1,515.988** | **6,850,696** | **499.507** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 4.362 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,857 | 314.052 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.379 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.793 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.315 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 18.903 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.315 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 18.903 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.158 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 4.726 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.123 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 4.930 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.025 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.473 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.383 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 27.578 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.128 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 7.661 |
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.008 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.493 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.025 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.246 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.025 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.491 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.025 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.491 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.015 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.150 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **6.289** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,697** | **404.215** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 3.643 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,854 | 262.279 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.317 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.168 |

**Chiquita Canyon Landfill EIR**
**Construction Emissions - Proposed Project Exhaust Emissions**

| | | | | |
|---|---|---|---|---|
| Bulldozer | Rubber Tired Dozers | 1 | 2025 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2025 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2025 | lb/hr |
| Compactor | Plate Compactors | 1 | 2025 | lb/hr |
| Graders | Graders | 1 | 2025 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2025 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2025 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2025 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2025 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2025 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2025 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2025 | lb/hr |
| Forklifts | Forklifts | 1 | 2025 | lb/hr |

### *Module 9: Excavation and Construction*

Construction Period: 4/1/2029 to 9/30/2029

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2029 | lb/hr |
| Scraper | Scrapers | 1 | 2029 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2029 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2029 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2029 | lb/hr |
| Compactor | Plate Compactors | 1 | 2029 | lb/hr |
| Graders | Graders | 1 | 2029 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2029 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2029 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2029 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2029 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2029 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2029 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2029 | lb/hr |
| Forklifts | Forklifts | 1 | 2029 | lb/hr |

### *Module 10: Excavation and Construction*

Construction Period: 4/1/2033 to 9/30/2033

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2033 | lb/hr |
| Scraper | Scrapers | 1 | 2033 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2033 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2033 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2033 | lb/hr |
| Compactor | Plate Compactors | 1 | 2033 | lb/hr |
| Graders | Graders | 1 | 2033 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2033 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2033 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2033 | lb/hr |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 5.88E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.06E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.52E-03 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.016 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.012 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.005 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.032 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.011 | 7.372 |
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.003 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklifts | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total** [12] | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.550** | **277.489** |

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 5.88E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.06E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.52E-03 |

### *Module 9: Excavation and Construction*

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.364 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.032 | 16.855 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.016 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.012 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.005 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.032 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.011 | 7.372 |
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.003 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklift | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total** [12] | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.550** | **277.489** |

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 5.88E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |

### *Module 10: Excavation and Construction*

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.364 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.032 | 16.855 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.016 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.012 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.005 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.032 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.011 | 7.372 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.131 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 3.936 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.094 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 3.763 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.216 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.320 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 23.060 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.107 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 6.406 |
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.006 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.368 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.203 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.012 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.122 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **5.240** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,694** | **337.142** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 3.643 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,854 | 262.279 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.317 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.168 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.131 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 3.936 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.094 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 3.763 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.216 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.320 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 23.060 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.107 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 6.406 |
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.006 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.368 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.203 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.012 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.122 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **5.240** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,694** | **337.142** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 3.643 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,854 | 262.279 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.317 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.168 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.131 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 3.936 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.094 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 3.763 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.216 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.320 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 23.060 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.107 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 6.406 |

**Chiquita Canyon Landfill EIR**
**Construction Emissions - Proposed Project Exhaust Emissions**

| | | | | |
|---|---|---|---|---|
| Trailer Mounted Light Plant | Generator Sets | 1 | 2033 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2033 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2033 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2033 | lb/hr |
| Forklifts | Forklifts | 1 | 2033 | lb/hr |

### *Module 11: Excavation and Construction*

Construction Period: 4/1/2037 to 9/30/2037

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2037 | lb/hr |
| Scraper | Scrapers | 1 | 2037 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2037 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2037 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2037 | lb/hr |
| Compactor | Plate Compactors | 1 | 2037 | lb/hr |
| Graders | Graders | 1 | 2037 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2037 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2037 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2037 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2037 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2037 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2037 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2037 | lb/hr |
| Forklifts | Forklifts | 1 | 2037 | lb/hr |

### *Module 12: Excavation and Construction*

Construction Period: 4/1/2041 to 9/30/2041

**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Construction Year | Emission Factor Unit |
|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2041 | lb/hr |
| Scraper | Scrapers | 1 | 2041 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2041 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2041 | lb/hr |
| Bulldozer | Rubber Tired Dozers | 1 | 2041 | lb/hr |
| Compactor | Plate Compactors | 1 | 2041 | lb/hr |
| Graders | Graders | 1 | 2041 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2041 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2041 | lb/hr |
| Water Truck | Off-Highway Trucks | 1 | 2041 | lb/hr |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2041 | lb/hr |
| Tractor | Tractors/Loaders/Backhoes | 1 | 2041 | lb/hr |
| Backhoe/Loader | Tractors/Loaders/Backhoes | 1 | 2041 | lb/hr |
| Loader | Tractors/Loaders/Backhoes | 1 | 2041 | lb/hr |
| Forklifts | Forklifts | 1 | 2041 | lb/hr |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.06E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.52E-03 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.003 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklift | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total** [12] | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.550** | **277.489** |

### *Module 11: Excavation and Construction*

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 5.88E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.06E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.52E-03 |

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.364 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.032 | 16.855 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.016 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.012 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.005 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.032 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.011 | 7.372 |
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.003 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklift | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total** [12] | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.550** | **277.489** |

| CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| 3.48E-01 | 4.11E-02 | 9.49E-03 | 1.39E-03 | 1.27E-03 | 1.27E-03 | 1.24E+02 | 5.88E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.06E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 2.96E-01 | 2.08E-02 | 4.80E-03 | 6.07E-04 | 6.40E-04 | 6.40E-04 | 5.17E+01 | 2.53E-03 |
| 1.45E-01 | 1.02E-02 | 2.35E-03 | 3.66E-04 | 3.14E-04 | 3.14E-04 | 3.12E+01 | 1.52E-03 |

| | Hourly Emissions (lb/hr) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO |
| Scraper | 19.384 | 2.291 | 0.529 | 0.073 | 0.070 | 0.070 | 7,393 | 0.364 | 193.836 |
| Scraper | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 643 | 0.032 | 16.855 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.989 | 0.117 | 0.027 | 0.005 | 0.004 | 0.004 | 530 | 0.033 | 7.915 |
| Bulldozer | 0.495 | 0.058 | 0.013 | 0.003 | 0.002 | 0.002 | 265 | 0.016 | 3.958 |
| Compactor | 0.031 | 0.021 | 0.001 | 0.000 | 0.000 | 0.000 | 4 | 0.000 | 0.311 |
| Graders | 0.696 | 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 248 | 0.012 | 5.568 |
| Backhoe/Loader | 0.592 | 0.042 | 0.010 | 0.001 | 0.001 | 0.001 | 103 | 0.005 | 2.366 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817 | 0.032 | 22.117 |
| Water Wagon | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272 | 0.011 | 7.372 |
| Trailer Mounted Light Plant | 0.507 | 0.036 | 0.008 | 0.001 | 0.001 | 0.001 | 78 | 0.003 | 1.014 |
| Tractor | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Backhoe/Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Loader | 0.296 | 0.021 | 0.005 | 0.001 | 0.001 | 0.001 | 52 | 0.003 | 2.366 |
| Forklift | 0.145 | 0.010 | 0.002 | 0.000 | 0.000 | 0.000 | 31 | 0.002 | 1.162 |
| **Total** [12] | **29.350** | **3.384** | **0.777** | **0.110** | **0.104** | **0.104** | **11,069** | **0.550** | **277.489** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.006 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.368 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.203 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.012 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.122 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **5.240** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,694** | **337.142** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 3.643 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,854 | 262.279 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.317 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.168 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.131 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 3.936 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.094 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 3.763 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.216 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.320 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 23.060 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.107 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 6.406 |
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.006 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.368 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.203 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.012 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.122 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **5.240** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,694** | **337.142** |

| Daily Emissions (lb/day) | | | | | | | Annual Emissions (lb/yr) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | $PM_{10}$ Exhaust | $PM_{2.5}$ Exhaust | $CO_2$ | $CH_4$ |
| 22.908 | 5.286 | 0.726 | 0.705 | 0.705 | 73,929 | 3.643 | 13,956.208 | 1,649.370 | 380.624 | 52.246 | 50.750 | 50.750 | 5,322,854 | 262.279 |
| 1.992 | 0.460 | 0.063 | 0.061 | 0.061 | 6,429 | 0.317 | 168.553 | 19.920 | 4.597 | 0.631 | 0.613 | 0.613 | 64,286 | 3.168 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.935 | 0.216 | 0.042 | 0.029 | 0.029 | 4,238 | 0.262 | 474.929 | 56.128 | 12.953 | 2.496 | 1.727 | 1.727 | 254,278 | 15.743 |
| 0.468 | 0.108 | 0.021 | 0.014 | 0.014 | 2,119 | 0.131 | 118.732 | 14.032 | 3.238 | 0.624 | 0.432 | 0.432 | 63,569 | 3.936 |
| 0.209 | 0.009 | 0.001 | 0.001 | 0.001 | 43 | 0.005 | 22.388 | 15.016 | 0.655 | 0.048 | 0.044 | 0.044 | 3,106 | 0.326 |
| 0.658 | 0.152 | 0.022 | 0.020 | 0.020 | 1,983 | 0.094 | 222.720 | 26.321 | 6.074 | 0.892 | 0.810 | 0.810 | 79,310 | 3.763 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 141.973 | 9.976 | 2.302 | 0.291 | 0.307 | 0.307 | 24,829 | 1.216 |
| 2.614 | 0.603 | 0.080 | 0.080 | 0.080 | 8,170 | 0.320 | 1,592.409 | 188.194 | 43.429 | 5.774 | 5.791 | 5.791 | 588,241 | 23.060 |
| 0.871 | 0.201 | 0.027 | 0.027 | 0.027 | 2,723 | 0.107 | 442.336 | 52.276 | 12.064 | 1.604 | 1.608 | 1.608 | 163,400 | 6.406 |
| 0.071 | 0.016 | 0.002 | 0.002 | 0.002 | 156 | 0.006 | 60.846 | 4.276 | 0.987 | 0.110 | 0.132 | 0.132 | 9,354 | 0.368 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 23.662 | 1.663 | 0.384 | 0.049 | 0.051 | 0.051 | 4,138 | 0.203 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.166 | 0.038 | 0.005 | 0.005 | 0.005 | 414 | 0.020 | 47.324 | 3.325 | 0.767 | 0.097 | 0.102 | 0.102 | 8,276 | 0.405 |
| 0.082 | 0.019 | 0.003 | 0.003 | 0.003 | 250 | 0.012 | 11.616 | 0.816 | 0.188 | 0.029 | 0.025 | 0.025 | 2,498 | 0.122 |
| **32.408** | **7.440** | **1.047** | **0.991** | **0.991** | **105,932** | **5.240** | **17,805.949** | **2,100.767** | **481.982** | **67.483** | **64.221** | **64.221** | **6,850,694** | **337.142** |

**Chiquita Canyon Landfill EIR**
**Construction Emissions - Proposed Project Exhaust Emissions**

| |
|---|
| ***Reference: Data (Equipment Type, Number, Hours of Operation, Daily Hours Used, Number of Workers) Provided by Mike Dean on 7-20-2011 to Brenda Eells via e-mail. Schedule information provided by CCL team via email from Brenda Eells/CH2M on 8/13/15 (CCL - construction operation schedule and information.msg).*** |
| [1] Unless otherwise noted, the total number of annual days equipment are used is based on data provided by CCL on 7/2011. |
| [2] The number of workers were estimated by summing the value provided by CCL for the new paved road entrance (10) and the default derived from Appendix A of the CalEEMod User's Guide, which assumes 1.25 workers per construction equipment during site preparation, grading, and paving and 0.42 worker trips per 1,000 square feet during building construction. |
| [3] It is assumed that a water truck is used every day of construction except for during paving activities. |
| [4] Equipment type, quantity, and daily hours of operation added to values provided by CCL for the construction of parking, administration building, and scale house. Values are based on default data in Table 3.2 of Appendix D of the CalEEMod User's Guide, 2011 based on the total project area (5.9 acres) and building area (0.5 acres). |
| [5] Site Preparation, Grading, and Paving duration is assumed equal to the CCL-provided durations for similar equipment. These durations are generally consistent with the CalEEMod defaults from Table 3.1 of Appendix D of the CalEEMod User's Guide, 2011 (scaled to fit a 6-month schedule). |
| [6] Berm Construction: assumed to occur simultaneously with the Demolition, Site Preparation, and Grading phases for a total of 62 days. Duration is generally consistent with the default duration in URBEMIS 2007, based on the berm area (2.7 acres). Equipment type, quantity, and daily hours of operation for the Berm Construction phase taken as the default from URBEMIS 2007, based on the berm area and a cut / fill volume of 48,811 cy. |
| [7] Assuming a truck haul capacity of 20 cy/truck, and the berm construction duration, 40 soil haul truck trips will need to occur each day during Berm Construction. It was assumed that 1 truck would make up to 5 trips per hour of operation to accomplish this task. |
| [8] Assuming activities occur sequentially, the total number of annual days equipment are used during Building Construction was assumed to be the difference between the total Entrance Construction duration and the durations of the other phases. This duration is approximately half of that derived from the CalEEMod default from Table 3.1 of Appendix D of the CalEEMod User's Guide, 2011 (scaled to fit a 6-month schedule), which is reasonable given the simple nature of these buildings. |
| [9] Two weeks to pave the new entrance road per CCL meeting on 3/29/12. Equipment type, quantity, and daily hours of operation for the Paving phase taken from Table 3.2 of Appendix D of the CalEEMod User's Guide, 2011 based on the parking area of 116,875 square feet (2.7 acres), which was estimated from Figure 2-1 as the unused land surrounding the Administration Building, plus 1 paver used for the construction entrance as per CCL. |
| [10] Typical cell construction based on Module 9; 2,965,000 cy total excavation per module. |
| [11] Entrance Construction total daily emissions and total hourly emissions are the maximum emissions given the assumed schedule (i.e., that all phases occur sequentially except for Berm Construction, which occurs simultaneously with Demolition, Site Preparation, and Grading). The total annual emissions represent the sum of all construction activities occurring within the year. |
| [12] Module Construction Total Emissions: To provide flexibility, the total hourly, total daily, and total annual emissions are calculated assuming all equipment can be used at the same time. |
| [13] Cell construction limited from 12 hours per day to 10 hours per day. Days of equipment use increased to keep total hours of equipment use consistent with estimate provided. |

**Chiquita Canyon Landfill EIR**
**Operation Emissions - Proposed Project Exhaust Emissions**

**Assumptions:**

| | | |
|---|---|---|
| Equipment for Operation During: | 2017 - 2046 | |
| Operation Schedule: | 52 | weeks/yr |
| | 6 | days/week |
| | 10 | hrs/day |

All off-road diesel equipment used for operation will meet Tier 4 Final emission standards unless otherwise indicated.

| Off-Road Equipment | 2024-2046 | | 2017 [1] | | 2018 [1] | | 2019 [1] | | 2020 [1] | | 2021 [1] | | 2022 [1] | | 2023 [1] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) | Number (ea) | Hrs of Operation (day) |
| Scraper -CAT 636G | 2 | 5.5 | 2 | 0.8 | 2 | 1.6 | 2 | 2.4 | 2 | 3.1 | 2 | 3.9 | 2 | 4.7 | 2 | 5.5 |
| Bulldozer - CAT D8 [5], D6 [1] | 3 | 9.5 | 3 | 1.4 | 3 | 2.7 | 3 | 4.1 | 3 | 5.4 | 3 | 6.8 | 3 | 8.1 | 3 | 9.5 |
| Compactor - CAT 836G | 3 | 10 | 3 | 1.4 | 3 | 2.9 | 3 | 4.3 | 3 | 5.7 | 3 | 7.1 | 3 | 8.6 | 3 | 10 |
| Water Truck - 4,000 gal, 3 axle, 58,000 gvw [2] | 1 | 8 | 1 | 1.1 | 1 | 2.3 | 1 | 3.4 | 1 | 4.6 | 1 | 5.7 | 1 | 6.9 | 1 | 8 |
| Water Wagon - CAT 633G 10,000 gal [2] | 1 | 7 | 1 | 1.0 | 1 | 2.0 | 1 | 3.0 | 1 | 4.0 | 1 | 5.0 | 1 | 6.0 | 1 | 7 |
| Trailer Mounted Light Plant | 3 | 5 | 3 | 0.7 | 3 | 1.4 | 3 | 2.1 | 3 | 2.9 | 3 | 3.6 | 3 | 4.3 | 3 | 5 |
| Tipper | 2 | 12 | 2 | 1.7 | 2 | 3.4 | 2 | 5.1 | 2 | 6.9 | 2 | 8.6 | 2 | 10.3 | 2 | 12 |

Emission Calculations
Operation Year: 2017
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2017 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 2.34E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2017 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 2.40E-02 |
| Compactor | Plate Compactors | 1 | 2017 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2017 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.58E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2017 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.58E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2017 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 6.54E-03 |
| Tipper | Dumpers/Tenders | 1 | 2017 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.31E-04 |

Emission Calculations
Operation Year: 2018
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2018 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 2.23E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2018 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 2.28E-02 |
| Compactor | Plate Compactors | 1 | 2018 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.49E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2018 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.49E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2018 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 5.79E-03 |
| Tipper | Dumpers/Tenders | 1 | 2018 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.31E-04 |

Emission Calculations
Operation Year: 2019
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2019 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 2.10E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2019 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 2.17E-02 |
| Compactor | Plate Compactors | 1 | 2019 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2019 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.42E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2019 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.42E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2019 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 5.09E-03 |
| Tipper | Dumpers/Tenders | 1 | 2019 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.31E-04 |

Emission Calculations
Operation Year: 2020
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2020 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 2.00E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2020 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 2.07E-02 |
| Compactor | Plate Compactors | 1 | 2020 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2020 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.34E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2020 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.34E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2020 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 4.57E-03 |
| Tipper | Dumpers/Tenders | 1 | 2020 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

Emission Calculations
Operation Year: 2021
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2021 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.90E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2021 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.97E-02 |
| Compactor | Plate Compactors | 1 | 2021 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2021 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.28E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2021 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.28E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2021 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 4.11E-03 |
| Tipper | Dumpers/Tenders | 1 | 2021 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

Emission Calculations
Operation Year: 2022
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2022 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.81E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2022 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.88E-02 |
| Compactor | Plate Compactors | 1 | 2022 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2022 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.22E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2022 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.22E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2022 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.89E-03 |
| Tipper | Dumpers/Tenders | 1 | 2022 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

Emission Calculations
Operation Year: 2023
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2023 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.73E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2023 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.79E-02 |
| Compactor | Plate Compactors | 1 | 2023 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2023 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.16E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2023 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.16E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2023 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.52E-03 |
| Tipper | Dumpers/Tenders | 1 | 2023 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

Emission Calculations
Operation Year: 2024
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2024 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.65E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2024 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.71E-02 |
| Compactor | Plate Compactors | 1 | 2024 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2024 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.11E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2024 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.11E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2024 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.28E-03 |
| Tipper | Dumpers/Tenders | 1 | 2024 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

Emission Calculations
Operation Year: 2025 through 2046
**Emission Factors**

| Equipment Type | SCAQMD Equipment Type | Equipment Code | Operation year | Emission factor unit | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scraper | Scrapers | 1 | 2025 | lb/hr | 8.43E-01 | 9.96E-02 | 2.30E-02 | 3.15E-03 | 3.06E-03 | 3.06E-03 | 3.21E+02 | 1.58E-02 |
| Bulldozer | Rubber Tired Dozers | 1 | 2025 | lb/hr | 4.95E-01 | 5.85E-02 | 1.35E-02 | 2.60E-03 | 1.80E-03 | 1.80E-03 | 2.65E+02 | 1.64E-02 |
| Compactor | Plate Compactors | 1 | 2025 | lb/hr | 3.11E-02 | 2.09E-02 | 9.10E-04 | 6.71E-05 | 6.07E-05 | 6.07E-05 | 4.31E+00 | 4.53E-04 |
| Water Truck | Off-Highway Trucks | 1 | 2025 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| Water Truck | Off-Highway Trucks | 1 | 2025 | lb/hr | 7.37E-01 | 8.71E-02 | 2.01E-02 | 2.67E-03 | 2.68E-03 | 2.68E-03 | 2.72E+02 | 1.07E-02 |
| Trailer Mounted Light Plant | Generator Sets | 1 | 2025 | lb/hr | 5.07E-01 | 3.56E-02 | 8.22E-03 | 9.14E-04 | 1.10E-03 | 1.10E-03 | 7.79E+01 | 3.09E-03 |
| Tipper | Dumpers/Tenders | 1 | 2025 | lb/hr | 5.50E-02 | 3.69E-02 | 1.61E-03 | 9.67E-05 | 1.07E-04 | 1.07E-04 | 7.62E+00 | 8.30E-04 |

**Chiquita Canyon Landfill EIR**
**Operation Emissions - Proposed Project Exhaust**

**Onsite Emissions**

| | Daily Emissions (lb/day) | | | | | | | Hourly Emissions (lb/hr) | | | | | | | Annual Emissions (lb/yr) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
| Scraper | 1.324 | 0.157 | 0.036 | 0.005 | 0.005 | 0.005 | 505.102 | 0.037 | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 642.857 | 0.047 | 413.196 | 48.832 | 11.269 | 1.547 | 1.503 | 1.503 | 157591.801 | 11.477 |
| Bulldozer | 2.014 | 0.238 | 0.055 | 0.011 | 0.007 | 0.007 | 1078.409 | 0.098 | 1.484 | 0.175 | 0.040 | 0.008 | 0.005 | 0.005 | 794.618 | 0.072 | 628.433 | 74.269 | 17.139 | 3.303 | 2.285 | 2.285 | 336463.761 | 30.489 |
| Compactor | 0.133 | 0.089 | 0.004 | 0.000 | 0.000 | 0.000 | 18.488 | 0.002 | 0.093 | 0.063 | 0.003 | 0.000 | 0.000 | 0.000 | 12.941 | 0.001 | 41.577 | 27.887 | 1.217 | 0.090 | 0.081 | 0.081 | 5768.172 | 0.606 |
| Water Truck | 0.843 | 0.100 | 0.023 | 0.003 | 0.003 | 0.003 | 311.239 | 0.018 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.016 | 262.874 | 31.067 | 7.169 | 0.953 | 0.956 | 0.956 | 97108.489 | 5.641 |
| Water Truck | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.016 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.016 | 230.015 | 27.184 | 6.273 | 0.834 | 0.836 | 0.836 | 84968.178 | 4.935 |
| Trailer Mounted Light Plant | 1.087 | 0.076 | 0.018 | 0.002 | 0.002 | 0.002 | 167.034 | 0.014 | 1.521 | 0.107 | 0.025 | 0.003 | 0.003 | 0.003 | 233.848 | 0.020 | 338.996 | 23.821 | 5.497 | 0.611 | 0.733 | 0.733 | 52114.760 | 4.372 |
| Tipper | 0.189 | 0.126 | 0.006 | 0.000 | 0.000 | 0.000 | 26.141 | 0.003 | 0.110 | 0.074 | 0.003 | 0.000 | 0.000 | 0.000 | 15.249 | 0.002 | 58.708 | 39.431 | 1.721 | 0.103 | 0.115 | 0.115 | 8155.926 | 0.931 |
| Total | 6.327 | 0.873 | 0.161 | 0.024 | 0.021 | 0.021 | 2378.747 | 0.187 | 6.368 | 0.792 | 0.157 | 0.023 | 0.021 | 0.021 | 2244.181 | 0.173 | 1973.879 | 272.492 | 50.285 | 7.441 | 6.509 | 6.509 | 742169.066 | 58.411 |

**Onsite Emissions**

| | Daily Emissions (lb/day) | | | | | | | Hourly Emissions (lb/hr) | | | | | | | Annual Emissions (lb/yr) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
| Scraper | 2.649 | 0.313 | 0.072 | 0.011 | 0.010 | 0.010 | 1010.204 | 0.075 | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 642.857 | 0.048 | 827.392 | 97.665 | 22.538 | 3.094 | 3.005 | 3.005 | 315185.585 | 21.786 |
| Bulldozer | 4.029 | 0.476 | 0.110 | 0.021 | 0.015 | 0.015 | 2156.819 | 0.186 | 1.484 | 0.175 | 0.040 | 0.008 | 0.005 | 0.005 | 794.618 | 0.069 | 1258.866 | 148.539 | 34.278 | 6.605 | 4.570 | 4.570 | 672927.607 | 58.011 |
| Compactor | 0.267 | 0.179 | 0.008 | 0.001 | 0.001 | 0.001 | 36.975 | 0.004 | 0.093 | 0.063 | 0.003 | 0.000 | 0.000 | 0.000 | 12.941 | 0.001 | 83.154 | 55.774 | 2.434 | 0.180 | 0.162 | 0.162 | 11536.344 | 1.212 |
| Water Truck | 1.685 | 0.199 | 0.045 | 0.006 | 0.006 | 0.006 | 622.477 | 0.034 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.015 | 525.748 | 62.134 | 14.339 | 1.906 | 1.912 | 1.912 | 194212.945 | 10.657 |
| Water Truck | 1.474 | 0.174 | 0.040 | 0.005 | 0.005 | 0.005 | 544.668 | 0.030 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.015 | 460.029 | 54.367 | 12.546 | 1.668 | 1.673 | 1.673 | 169935.327 | 9.325 |
| Trailer Mounted Light Plant | 2.173 | 0.153 | 0.035 | 0.004 | 0.005 | 0.005 | 334.069 | 0.027 | 1.521 | 0.107 | 0.025 | 0.003 | 0.003 | 0.003 | 233.848 | 0.019 | 677.993 | 47.643 | 10.994 | 1.223 | 1.466 | 1.466 | 104229.508 | 8.742 |
| Tipper | 0.377 | 0.253 | 0.011 | 0.001 | 0.001 | 0.001 | 52.282 | 0.006 | 0.110 | 0.074 | 0.003 | 0.000 | 0.000 | 0.000 | 15.249 | 0.002 | 117.576 | 78.862 | 3.441 | 0.207 | 0.229 | 0.229 | 16311.854 | 1.779 |
| Total | 12.653 | 1.747 | 0.322 | 0.048 | 0.042 | 0.042 | 4757.494 | 0.364 | 6.368 | 0.792 | 0.157 | 0.023 | 0.021 | 0.021 | 2244.181 | 0.183 | 3947.759 | 544.983 | 100.570 | 14.882 | 13.018 | 13.018 | 1484338.170 | 110.475 |

**Onsite Emissions**

| | Daily Emissions (lb/day) | | | | | | | Hourly Emissions (lb/hr) | | | | | | | Annual Emissions (lb/yr) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
| Scraper | 3.973 | 0.470 | 0.108 | 0.015 | 0.014 | 0.014 | 1515.305 | 0.099 | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 642.857 | 0.042 | 1239.589 | 146.497 | 33.807 | 4.640 | 4.508 | 4.508 | 472775.310 | 30.926 |
| Bulldozer | 6.043 | 0.714 | 0.165 | 0.032 | 0.022 | 0.022 | 3235.229 | 0.265 | 1.484 | 0.175 | 0.040 | 0.008 | 0.005 | 0.005 | 794.618 | 0.051 | 1885.299 | 222.808 | 51.417 | 9.908 | 6.856 | 6.856 | 1009301.427 | 82.766 |
| Compactor | 0.400 | 0.268 | 0.012 | 0.001 | 0.001 | 0.001 | 55.463 | 0.006 | 0.093 | 0.063 | 0.003 | 0.000 | 0.000 | 0.000 | 12.941 | 0.001 | 124.731 | 83.661 | 3.651 | 0.269 | 0.243 | 0.243 | 17304.516 | 1.818 |
| Water Truck | 2.528 | 0.299 | 0.069 | 0.009 | 0.008 | 0.008 | 933.718 | 0.049 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.014 | 788.622 | 93.201 | 21.508 | 2.859 | 2.868 | 2.868 | 291313.038 | 15.137 |
| Water Truck | 2.212 | 0.261 | 0.060 | 0.008 | 0.008 | 0.008 | 817.001 | 0.042 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 272.334 | 0.014 | 690.044 | 81.551 | 18.819 | 2.502 | 2.509 | 2.509 | 254904.445 | 13.244 |
| Trailer Mounted Light Plant | 3.260 | 0.229 | 0.053 | 0.006 | 0.007 | 0.007 | 501.104 | 0.040 | 1.521 | 0.107 | 0.025 | 0.003 | 0.003 | 0.003 | 233.848 | 0.020 | 1016.989 | 71.464 | 16.492 | 1.834 | 2.199 | 2.199 | 156334.283 | 12.505 |
| Tipper | 0.565 | 0.379 | 0.017 | 0.001 | 0.001 | 0.001 | 78.422 | 0.059 | 0.110 | 0.074 | 0.003 | 0.000 | 0.000 | 0.000 | 15.249 | 0.002 | 176.364 | 118.293 | 5.162 | 0.310 | 0.344 | 0.344 | 24487.795 | 2.668 |
| Total | 18.980 | 2.620 | 0.484 | 0.072 | 0.063 | 0.063 | 7136.241 | 0.502 | 6.368 | 0.792 | 0.157 | 0.023 | 0.021 | 0.021 | 2244.181 | 0.154 | 5921.638 | 817.475 | 150.856 | 22.323 | 19.527 | 19.527 | 2226507.190 | 156.771 |

**Onsite Emissions**

| | Daily Emissions (lb/day) | | | | | | | Hourly Emissions (lb/hr) | | | | | | | Annual Emissions (lb/yr) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
| Scraper | 5.30E+00 | 6.26E-01 | 1.44E-01 | 1.98E-02 | 1.93E-02 | 1.93E-02 | 1.93E-02 | 1.93E-02 | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 0.006 | 0.006 | 1652.785 | 195.329 | 45.076 | 6.187 | 6.010 | 6.010 | 6.010 | 6.010 |
| Bulldozer | 8.06E+00 | 9.52E-01 | 2.20E-01 | 4.23E-02 | 2.93E-02 | 2.93E-02 | 2.93E-02 | 2.93E-02 | 1.484 | 0.175 | 0.040 | 0.008 | 0.005 | 0.005 | 0.005 | 0.005 | 2513.731 | 297.077 | 68.556 | 13.210 | 9.141 | 9.141 | 9.141 | 9.141 |
| Compactor | 5.33E-01 | 3.58E-01 | 1.59E-02 | 1.15E-03 | 1.04E-03 | 1.04E-03 | 1.04E-03 | 1.04E-03 | 0.093 | 0.063 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 166.309 | 111.548 | 4.868 | 0.359 | 0.325 | 0.325 | 0.325 | 0.325 |
| Water Truck | 3.37E+00 | 3.98E-01 | 9.19E-02 | 1.22E-02 | 1.23E-02 | 1.23E-02 | 1.23E-02 | 1.23E-02 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 1051.495 | 124.268 | 28.677 | 3.813 | 3.824 | 3.824 | 3.824 | 3.824 |
| Water Truck | 2.95E+00 | 3.48E-01 | 8.04E-02 | 1.07E-02 | 1.07E-02 | 1.07E-02 | 1.07E-02 | 1.07E-02 | 0.737 | 0.087 | 0.020 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 920.059 | 108.734 | 25.093 | 3.336 | 3.346 | 3.346 | 3.346 | 3.346 |
| Trailer Mounted Light Plant | 4.35E+00 | 3.05E-01 | 7.05E-02 | 7.84E-03 | 9.40E-03 | 9.40E-03 | 9.40E-03 | 9.40E-03 | 1.521 | 0.107 | 0.025 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 1355.986 | 95.285 | 21.989 | 2.445 | 2.932 | 2.932 | 2.932 | 2.932 |
| Tipper | 7.54E-01 | 5.06E-01 | 2.21E-02 | 1.53E-03 | 1.47E-03 | 1.47E-03 | 1.47E-03 | 1.47E-03 | 0.110 | 0.074 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 235.153 | 157.724 | 6.883 | 0.414 | 0.459 | 0.459 | 0.459 | 0.459 |
| Total | 25.306 | 3.493 | 0.645 | 0.095 | 0.083 | 0.083 | 0.083 | 0.083 | 6.368 | 0.792 | 0.157 | 0.023 | 0.021 | 0.021 | 0.021 | 0.021 | 7895.517 | 1089.967 | 201.141 | 29.764 | 26.035 | 26.035 | 26.035 | 26.035 |

**Onsite Emissions**

| | Daily Emissions (lb/day) | | | | | | | Hourly Emissions (lb/hr) | | | | | | | Annual Emissions (lb/yr) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ | CO | NOx | ROG | SOx | PM10 Exhaust | PM2.5 Exhaust | $CO_2$ | $CH_4$ |
| Scraper | 6.622 | 0.783 | 0.181 | 0.025 | 0.024 | 0.024 | 2525.510 | 0.149 | 1.686 | 0.199 | 0.046 | 0.006 | 0.006 | 0.006 | 642.857 | 0.036 | 2065.981 | 244.161 | 56.345 | 7.734 | 7.513 | 7.513 | 787959.141 | 46.486 |
| Bulldozer | 10.071 | 1.190 | 0.275 | 0.053 | 0.037 | 0.037 | 5392.048 | 0.401 | 1.484 | 0.175 | 0.040 | 0.008 | 0.005 | 0.005 | 794.618 | 0.059 | 3142.164 | 371.347 | 85.695 | 16.513 | 11.426 | 11.426 | 1682319.023 | 125.081 |

## Chiquita Canyon Landfill EIR

**Operation Emissions - Proposed Project Flare Emissions**

**Assumptions:**

The operating schedule is based Golder Associates 9/2016 LFG report.
The project does not include the operation of the existing two flares.
Flare emissions are based on existing source test data (CCL meeting, 3/29/12)[1]
Operating scenario: 24 hrs/ day
365 days / yr
LFG Recovery [2]: 85%
Existing Flare Capacity (SCFM): 8000

| Operations Year | Landfill Gas Captured (scfm): | New Flares (scfm) [3] |
|---|---|---|
| **2017** | 5310.8 | N/A |
| **2018** | 5549.65 | N/A |
| **2019** | 5829.3 | N/A |
| **2020** | 6149.75 | N/A |
| **2021** | 6509.3 | N/A |
| **2022** | 6907.95 | N/A |
| **2023** | 7344.85 | N/A |
| **2024** | 7818.3 | N/A |
| **2025** | 8306.2 | 306.2 |
| **2026** | 8780.5 | 780.5 |
| **2027** | 9248 | 1248 |
| **2028** | 9707 | 1707 |
| **2029** | 10157.5 | 2157.5 |
| **2030** | 10599.5 | 2599.5 |
| **2031** | 11033 | 3033 |
| **2032** | 11458 | 3458 |
| **2033** | 11874.5 | 3874.5 |
| **2034** | 12282.5 | 4282.5 |
| **2035** | 12682 | 4682 |
| **2036** | 13073 | 5073 |
| **2037** | 13455.5 | 5455.5 |
| **2038** | 13829.5 | 5829.5 |
| **2039** | 14195 | 6195 |
| **2040** | 14152.5 | 6152.5 |
| **2041** | 13872 | 5872 |
| **2042** | 13600 | 5600 |
| **2043** | 13328 | 5328 |
| **2044** | 13064.5 | 5064.5 |
| **2045** | 12809.5 | 4809.5 |
| **2046** | 12554.5 | 4554.5 |

| | Emission Rates (lb/hr) | | | | | | |
|---|---|---|---|---|---|---|---|
| **Pollutant** | **CO [4]** | **$NO_x$** | **ROG (as CH4)** | **$SO_2$** | **$PM_{10}$** | **CO2 (kg/scf) [5]** | **Source Test Inlet Gas Flow Rate (dscfm) [6]** |
| **Source Test of Flare 2 [1]** | 1.38 | 1.38 | 0.278 | 1.81 | 0.14 | 0.025252 | 2,166 |
| **Permitted Limit Flare 1** | 5.6 | 3.9 | 0.92 | 2.5 | 1.4 | - | 4,000 |
| **Permitted Limit Flare 2** | 7.2 | 2.4 | 1.33 | 2.5 | 1.4 | - | 4,000 |

| | Emission Rates (lb/dscf) | | | | | |
|---|---|---|---|---|---|---|
| **Pollutant** | **CO** | **$NO_x$** | **ROG (as CH4)** | **$SO_2$** | **$PM_{10}$** | **CO2** |
| **Source Test of Flare 2** | 0.000011 | 0.000011 | 0.000002 | 0.000014 | 0.000001 | 0.055671 |

| | Hourly Emissions (lb/hr) | | | | | | | | Daily Emissions (lb/day) | | | | | | | | Annual Emissions (lb/year) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year of Operation** | **CO** | **$NO_x$** | **ROG (as CH4) [7]** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$ [8]** | **CO2** | **CH4 [7]** | **CO** | **$NO_x$** | **ROG (as CH4) [7]** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$ [8]** | **CO2** | **CH4 [7]** | **CO** | **$NO_x$** | **ROG (as CH4) [7]** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$ [8]** | **CO2** | **CH4 [7]** |
| **2017** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2018** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2019** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2020** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2021** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2022** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2023** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2024** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **2025** | 0.20 | 0.20 | 0.04 | 0.26 | 0.02 | 0.02 | 1,022.79 | N/A | 4.68 | 4.68 | 0.94 | 6.14 | 0.47 | 0.47 | 24,547.04 | N/A | 1,709 | 1,709 | 344 | 2,241 | 173 | 173 | 8,959,670 | N/A |
| **2026** | 0.50 | 0.50 | 0.10 | 0.65 | 0.05 | 0.05 | 2,607.09 | N/A | 11.93 | 11.93 | 2.40 | 15.65 | 1.21 | 1.21 | 62,570.11 | N/A | 4,356 | 4,356 | 878 | 5,713 | 442 | 442 | 22,838,089 | N/A |
| **2027** | 0.80 | 0.80 | 0.16 | 1.04 | 0.08 | 0.08 | 4,168.67 | N/A | 19.08 | 19.08 | 3.84 | 25.03 | 1.94 | 1.94 | 100,048.04 | N/A | 6,965 | 6,965 | 1,403 | 9,136 | 707 | 707 | 36,517,533 | N/A |
| **2028** | 1.09 | 1.09 | 0.22 | 1.43 | 0.11 | 0.11 | 5,701.86 | N/A | 26.10 | 26.10 | 5.26 | 34.23 | 2.65 | 2.65 | 136,844.55 | N/A | 9,527 | 9,527 | 1,919 | 12,496 | 967 | 967 | 49,948,261 | N/A |
| **2029** | 1.37 | 1.37 | 0.28 | 1.80 | 0.14 | 0.14 | 7,206.65 | N/A | 32.99 | 32.99 | 6.65 | 43.27 | 3.35 | 3.35 | 172,959.65 | N/A | 12,041 | 12,041 | 2,426 | 15,793 | 1,222 | 1,222 | 63,130,271 | N/A |
| **2030** | 1.66 | 1.66 | 0.33 | 2.17 | 0.17 | 0.17 | 8,683.06 | N/A | 39.75 | 39.75 | 8.01 | 52.13 | 4.03 | 4.03 | 208,393.33 | N/A | 14,508 | 14,508 | 2,923 | 19,029 | 1,472 | 1,472 | 76,063,564 | N/A |
| **2031** | 1.93 | 1.93 | 0.39 | 2.53 | 0.20 | 0.20 | 10,131.07 | N/A | 46.38 | 46.38 | 9.34 | 60.83 | 4.70 | 4.70 | 243,145.59 | N/A | 16,928 | 16,928 | 3,410 | 22,202 | 1,717 | 1,717 | 88,748,140 | N/A |
| **2032** | 2.20 | 2.20 | 0.44 | 2.89 | 0.22 | 0.22 | 11,550.68 | N/A | 52.88 | 52.88 | 10.65 | 69.35 | 5.36 | 5.36 | 277,216.44 | N/A | 19,300 | 19,300 | 3,888 | 25,313 | 1,958 | 1,958 | 101,183,999 | N/A |
| **2033** | 2.47 | 2.47 | 0.50 | 3.24 | 0.25 | 0.25 | 12,941.91 | N/A | 59.24 | 59.24 | 11.93 | 77.70 | 6.01 | 6.01 | 310,605.86 | N/A | 21,624 | 21,624 | 4,356 | 28,362 | 2,194 | 2,194 | 113,371,140 | N/A |
| **2034** | 2.73 | 2.73 | 0.55 | 3.58 | 0.28 | 0.28 | 14,304.74 | N/A | 65.48 | 65.48 | 13.19 | 85.89 | 6.64 | 6.64 | 343,313.88 | N/A | 23,901 | 23,901 | 4,815 | 31,349 | 2,425 | 2,425 | 125,309,565 | N/A |
| **2035** | 2.98 | 2.98 | 0.60 | 3.91 | 0.30 | 0.30 | 15,639.19 | N/A | 71.59 | 71.59 | 14.42 | 93.90 | 7.26 | 7.26 | 375,340.47 | N/A | 26,131 | 26,131 | 5,264 | 34,273 | 2,651 | 2,651 | 136,999,272 | N/A |
| **2036** | 3.23 | 3.23 | 0.65 | 4.24 | 0.33 | 0.33 | 16,945.24 | N/A | 77.57 | 77.57 | 15.63 | 101.74 | 7.87 | 7.87 | 406,685.65 | N/A | 28,313 | 28,313 | 5,704 | 37,135 | 2,872 | 2,872 | 148,440,262 | N/A |
| **2037** | 3.48 | 3.48 | 0.70 | 4.56 | 0.35 | 0.35 | 18,222.89 | N/A | 83.42 | 83.42 | 16.80 | 109.41 | 8.46 | 8.46 | 437,349.41 | N/A | 30,448 | 30,448 | 6,134 | 39,935 | 3,089 | 3,089 | 159,632,535 | N/A |
| **2038** | 3.71 | 3.71 | 0.75 | 4.87 | 0.38 | 0.38 | 19,472.16 | N/A | 89.14 | 89.14 | 17.96 | 116.91 | 9.04 | 9.04 | 467,331.76 | N/A | 32,535 | 32,535 | 6,554 | 42,673 | 3,301 | 3,301 | 170,576,091 | N/A |
| **2039** | 3.95 | 3.95 | 0.80 | 5.18 | 0.40 | 0.40 | 20,693.03 | N/A | 94.73 | 94.73 | 19.08 | 124.24 | 9.61 | 9.61 | 496,632.68 | N/A | 34,575 | 34,575 | 6,965 | 45,349 | 3,508 | 3,508 | 181,270,929 | N/A |
| **2040** | 3.92 | 3.92 | 0.79 | 5.14 | 0.40 | 0.40 | 20,551.07 | N/A | 94.08 | 94.08 | 18.95 | 123.39 | 9.54 | 9.54 | 493,225.60 | N/A | 34,338 | 34,338 | 6,917 | 45,038 | 3,484 | 3,484 | 180,027,343 | N/A |
| **2041** | 3.74 | 3.74 | 0.75 | 4.91 | 0.38 | 0.38 | 19,614.12 | N/A | 89.79 | 89.79 | 18.09 | 117.77 | 9.11 | 9.11 | 470,738.84 | N/A | 32,773 | 32,773 | 6,602 | 42,984 | 3,325 | 3,325 | 171,819,676 | N/A |
| **2042** | 3.57 | 3.57 | 0.72 | 4.68 | 0.36 | 0.36 | 18,705.56 | N/A | 85.63 | 85.63 | 17.25 | 112.31 | 8.69 | 8.69 | 448,933.50 | N/A | 31,255 | 31,255 | 6,296 | 40,993 | 3,171 | 3,171 | 163,860,727 | N/A |
| **2043** | 3.39 | 3.39 | 0.68 | 4.45 | 0.34 | 0.34 | 17,797.01 | N/A | 81.47 | 81.47 | 16.41 | 106.86 | 8.27 | 8.27 | 427,128.16 | N/A | 29,736 | 29,736 | 5,990 | 39,002 | 3,017 | 3,017 | 155,901,777 | N/A |
| **2044** | 3.23 | 3.23 | 0.65 | 4.23 | 0.33 | 0.33 | 16,916.84 | N/A | 77.44 | 77.44 | 15.60 | 101.57 | 7.86 | 7.86 | 406,004.23 | N/A | 28,266 | 28,266 | 5,694 | 37,073 | 2,868 | 2,868 | 148,191,545 | N/A |
| **2045** | 3.06 | 3.06 | 0.62 | 4.02 | 0.31 | 0.31 | 16,065.07 | N/A | 73.54 | 73.54 | 14.81 | 96.46 | 7.46 | 7.46 | 385,561.73 | N/A | 26,843 | 26,843 | 5,407 | 35,207 | 2,723 | 2,723 | 140,730,030 | N/A |
| **2046** | 2.90 | 2.90 | 0.58 | 3.81 | 0.29 | 0.29 | 15,213.30 | N/A | 69.64 | 69.64 | 14.03 | 91.34 | 7.07 | 7.07 | 365,119.22 | N/A | 25,419 | 25,419 | 5,121 | 33,340 | 2,579 | 2,579 | 133,268,514 | N/A |
| **Total** | 56.11 | 56.11 | 11.30 | 73.59 | 5.69 | 5.69 | 294,153.99 | N/A | 1,346.55 | 1,346.55 | 271.26 | 1,766.13 | 136.61 | 136.61 | 7,059,695.71 | N/A | 491,492.32 | 491,492.32 | 99,010.77 | 644,638.48 | 49,861.54 | 49,861.54 | 2,576,788,934.76 | N/A |

Conversion:

| | |
|---|---|
| lb/kg conversion: | 2.20 |
| min/yr: | 525600 |
| cu.ft./lb-mol (@ 14.696 psia and 60 oF) | 379.49 |
| MW CO2 (lb/lb-mol) | 44 |
| MW CH4 (lb/lb-mol) | 16 |

[1] Reference: Source test report Horizon Air Measurement Services, INC Test # C33-013-FR, Report February 16, 2012. CCL Compliance Test on Landfill Gas Flare #2. Prepared for the SCAQMD. Initial test 1/5/2012, re-test for PM only on 2/2/12. The final values are included as representative.

[2] LFG recovery would be 85% with BMPs, as described in the SCS Memorandum dated November 2016 (SCS, 2016a).

[3] Years with N/A yield less landfill gas to the flares than is already permitted, therefore, no new flare is needed.

[4] CO emissions were measured as 0.6 lb/hr. However this is less than 20% of the full scale of the analyzer. A low scale calibration gas (10% or 1.38 lb/hr) of range was used to verify the low level emissions. Therefore, the 1.38 lb/hr is used since the measured value was below the analyzer minimum acceptable range.

[5] $CO_2$ Flare emissions based on The Climate Registry General Reporting Protocol: 2015 Climate Registry Default Emission Factors, April 2015 (EF=0.025252 kg/scf) and Golder Associates 11/15 LFG report (LFG flow rate)

[6] Source Test Inlet Gas Flow Rate was reported as 2,167 dscfm in Table 2-1 of the source test report but as 2,166 dscfm in Table 5-1 of the source test report. Value listed as 2,166 dscfm here to be consistent with values used to estimate toxic emissions.

[7] Total Non-Methane Hydrocarbons (ROG) measured as methane equivalent per source test report: Horizon Air Measurement Services, INC Test # C33-013-FR, Report February 16, 2012. No methane emitted in flare exhaust gas.

[8] $PM_{2.5}$ equals 100% of $PM_{10}$ for flares burning gaseous fuel per Appendix A, Table A of the SCAQMD Final –Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, October 2006.

## Chiquita Canyon Landfill EIR

**Construction Emissions - Proposed Project Fugitive Emissions From Activities**

**Project Data** [1]

| | | |
|---|---|---|
| Expansion Landfill Footprint | 142.7 | acres |
| Average Module Footprint | 20 | acres |
| New Entrance and Road | 30 | acres |
| | | |
| *Construction Activity* | *Per Module* | *For Entrance* |
| Total Excavation [2] (cy) | 2,965,000 | 360,000 |
| Excavation Schedule (days) | 60 | 30 |
| Grading Schedule (days) | 72 | 12 |
| Paving [3] (acres) | 0 | 11 |
| Paving Schedule (days) | NA | 10 |
| Berm - Onsite Cut / Fill ($ft^3$) [4] | NA | 1,317,911 |
| Berm Schedule [5] (days) | NA | 62 |

**General Assumptions**

| Construction Schedule | Operational Schedule | |
|---|---|---|
| 10 | 10 | hrs / day |
| 5 | 6 | days / week |
| 4 | (52 weeks / yr) | weeks / month |

**Emission Factors**

| Activity | Fugitive $PM_{10}$ EF | Fugitive $PM_{2.5}$ EF [6] | Unit |
|---|---|---|---|
| Excavation [7] | 0.00042 | 0.00009 | lb/$ft^3$/day |
| Grading [7] | 26.4 | 5.5 | lb/acre/day |
| Onsite Cut / Fill [8] | 0.059 | 0.012 | ton/1,000 cy |
| | **ROG EF** | **Unit** | |
| Paving [9] | 2.62 | lb ROG / acre | |

Conversion: $ft^3$/cy 27

**Control Measures**

| Measure | Control Efficiency | Applicable Source | Reference |
|---|---|---|---|
| Apply water every 3 hours to distrubed areas within construction site. | 75.00% | Excavation / Grading | Sacramento Metropolitan Air Quality Management District (SMAQMD). 2015. CEQA Guide. June. |
| Total Control Efficiency | 75.00% | Excavation / Grading | |

***Entrance Construction*** [10]

| Construction Period (months) | Duration (days) | YR |
|---|---|---|
| 6 | 120 | 2018 |

| | | Fugitive Particulate Emissions | | | | | | ROG Emissions | | | Controlled Emissions | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (lb/day) | | (lb/hr) | | (lb/yr) [11] | | (lb/day) | (lb/hr) | (lb/yr) [11] | Fugitive Particulate Emissions (lb/day) | | Fugitive Particulate Emissions (lb/hr) | | Fugitive Particulate Emissions (lb/yr) [11] | | ROG Emissions (lb/day) | ROG Emissions (lb/hr) | ROG Emissions (lb/yr) |
| Activity | Max. Activity per day | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | ROG | ROG | ROG | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | ROG | ROG | ROG |
| Grading (acres/day) [12] | 7.5 | 198.00 | 41.18 | 19.80 | 4.12 | 2,161.18 | 449.53 | NA | NA | NA | 49.50 | 10.30 | 4.95 | 1.03 | 540.30 | 112.38 | NA | NA | NA |
| Excavation (cy/day) | 12,000 | 136.08 | 28.30 | 13.61 | 2.83 | 3,713.31 | 772.37 | NA | NA | NA | 34.02 | 7.08 | 3.40 | 0.71 | 928.33 | 193.09 | NA | NA | NA |
| Paving [7] (acres/day) | 1.1 | NA | NA | NA | NA | NA | NA | 2.88 | 0.29 | 26.21 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Berm - Onsite Cut / Fill ($ft^3$/day) | 21,257 | 92.90 | 19.32 | 9.29 | 1.93 | 5,239.01 | 1,089.71 | NA | NA | NA | 23.22 | 4.83 | 2.32 | 0.48 | 1,309.75 | 272.43 | NA | NA | NA |
| **Total** [13] | | **290.90** | **60.51** | **29.09** | **6.05** | **11,113.50** | **2,311.61** | **2.88** | **0.29** | **26.21** | **72.72** | **15.13** | **7.27** | **1.51** | **2,778.38** | **577.90** | **N/A** | **N/A** | **N/A** |

***Module Construction*** [10]

| Construction Period (months) | Duration (days) | YR | |
|---|---|---|---|
| 6 | 120 | 2017-2041 | Emissions are the same for each yr of module construction. |

| | | Fugitive Particulate Emissions | | | | | | Controlled Emissions: Fugitive Particulate Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (lb/day) | | (lb/hr) | | (lb/yr) [11] | | (lb/day) | | (lb/hr) | | (lb/yr) [11] | |
| Activity | Max. Activity per day | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ |
| Grading (acres/day) [12] | 5 | 132.00 | 27.46 | 13.20 | 2.75 | 8,644.73 | 1,798.10 | 33.00 | 6.86 | 3.30 | 0.69 | 2,161.18 | 449.53 |
| Excavation (cy/day) | 50,000 | 567.00 | 117.94 | 56.70 | 11.79 | 30,944.22 | 6,436.40 | 141.75 | 29.48 | 14.18 | 2.95 | 7,736.05 | ###### |
| **Total** [14, 15] | | **699.00** | **145.39** | **69.90** | **14.54** | **39,588.95** | **8,234.50** | **174.75** | **36.35** | **17.48** | **3.63** | **9,897.24** | ###### |

***Module Operation*** [10]

| YR | Annual Duration (days) | |
|---|---|---|
| 2018-2046 | 312 | Emissions are the same for each yr of operation and are for all modules. |

| | | Fugitive Particulate Emissions | | | | | | Controlled Emissions: Fugitive Particulate Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (lb/day) | | (lb/hr) | | (lb/yr) [11] | | (lb/day) | | (lb/hr) | | (lb/yr) [11] | |
| Activity | Assumed Max. Activity | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{10}$ | $PM_{2.5}$ |
| Grading (acres/day) | 2.3 | 60.72 | 12.63 | 6.07 | 1.26 | 17,231.84 | 3,584.22 | 15.18 | 3.16 | 1.52 | 0.32 | 4,307.96 | 896.06 |
| Excavation (cy/day) | 730 | 8.28 | 1.72 | 0.83 | 0.17 | 2,349.29 | 488.65 | 2.07 | 0.43 | 0.21 | 0.04 | 587.32 | 122.16 |
| **Total** | | **69.00** | **14.35** | **6.90** | **1.44** | **19,581.12** | **4,072.87** | **17.25** | **3.59** | **1.72** | **0.36** | **4,895.28** | ###### |

[1] Unless otherwise noted data provided in the Assumptions tab and are based on project specific inputs.

[2] Typical module size based on Module 9 as per data provided by CCL July 2011. Data provided for entrance construction is 12,000 cy/day.

[3] Total area to be paved includes approximately 8 acres for road and 3 acres for new parking area as per assumptions sheet.

[4] Volume of cut / fill for the Berm Construction taken from design drawings (ccl_berm-calcs-r01.pdf).

[5] The Berm schedule was taken as described on the Construction PP - Exhaust tab.

[6] Source: SCAQMD Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology, October 2006. For construction fugitive dust sources, it is assumed that 20.8% of the $PM_{10}$ would be $PM_{2.5}$. For paved and unpaved road fugitive dust sources, it is assumed that 16.9% and 21.2% of the $PM_{10}$ would be $PM_{2.5}$, respectively.

[7] Source: SCAQMD CEQA Air Quality Handbook, November 1993. Table 9-9, assumed soil density of 1.8 ton/$yd^3$.

[8] Source: Table 3-2 of the WRAP Fugitive Dust Handbook (Countess Environmental, 2006), which is consistent with the approach used by URBEMIS2007, the previously ARB-approved emission calculation estimator.

[9] Source: Section 4.8 of Appendix A of the CalEEMod User's Guide, 2011.

[10] Fugitive Emissions are based on maximum amount of earth disturbed. Emission factors are independent of operating year. Maximum daily activity data provided by CCL, July 2011.

[11] Fugitive dust emissions assumed not to occur on days in which precipitation would be >0.1 inches. Average Los Angeles - South Coast precipitation conditions (33 days/year) were taken from CalEEMod Appendix D, Table 1.1.

[12] Using the assumptions in Appendix A of the Software User's Guide: URBEMIS2007 for Windows (JSA, 2007), up to 25% of the total graded area could be disturbed on the worst-case day.

[13] The Total Daily and Total Hourly emissions are the maximum emissions given the assumed schedule (i.e., that Grading and Excavation activities do not occur simultaneously and that Berm activities may overlap with Grading and/or Excavation activities). The Total Annual emissions represent the sum of all construction activities occurring within the year.

[14] It is assumed that the construction phases excavation and grading could occur simultaneously for the module construction as consistent with the exhaust construction tab.

[15] Totals for Module Construction represent total emissions from construction of one Module since one module is constructed per year.

**Chiquita Canyon Landfill EIR**

**Operation Emissions - Proposed Project Flare and LFG Toxic Emissions**

**Assumptions:**

Flare and LFG emissions are based on existing source test data from 1/5/12 (CCL meeting, 3/29/12)
Gas flow rate data provided by Golder Associates (9/2016) using EPA's LandGEM Model version 3.02 (Attachment 1 Results table).
Annual LFG recovery rate would be 85% with BMPs, as described in the SCS Memorandum dated November 2016 (SCS, 2016a).
Emissions for the new flares would be the same as the existing flares.

| Year | Landfill Gas Generation (scfm) | Landfill Gas Captured (scfm) | New Flares (scfm) | Total Fugitive Landfill Gas (scfm) |
|---|---|---|---|---|
| 2029 | 11950 | 10157.5 | 2157.5 | 1792.5 |
| 2030 | 12470 | 10599.5 | 2599.5 | 1870.5 |
| 2031 | 12980 | 11033 | 3033 | 1947 |
| 2032 | 13480 | 11458 | 3458 | 2022 |
| 2033 | 13970 | 11874.5 | 3874.5 | 2095.5 |
| 2034 | 14450 | 12282.5 | 4282.5 | 2167.5 |
| 2035 | 14920 | 12682 | 4682 | 2238 |
| 2036 | 15380 | 13073 | 5073 | 2307 |
| 2037 | 15830 | 13455.5 | 5455.5 | 2374.5 |
| 2038 | 16270 | 13829.5 | 5829.5 | 2440.5 |
| 2039 | 16700 | 14195 | 6195 | 2505 |
| 2040 | 16650 | 14152.5 | 6152.5 | 2497.5 |
| 2041 | 16320 | 13872 | 5872 | 2448 |
| 2042 | 16000 | 13600 | 5600 | 2400 |
| 2043 | 15680 | 13328 | 5328 | 2352 |
| 2044 | 15370 | 13064.5 | 5064.5 | 2305.5 |
| 2045 | 15070 | 12809.5 | 4809.5 | 2260.5 |
| 2046 | 14770 | 12554.5 | 4554.5 | 2215.5 |
| 2047 | 14480 | 12308 | 4308 | 2172 |
| 2048 | 14190 | 12061.5 | 4061.5 | 2128.5 |
| 2049 | 13910 | 11823.5 | 3823.5 | 2086.5 |
| 2050 | 13630 | 11585.5 | 3585.5 | 2044.5 |
| 2051 | 13360 | 11356 | 3356 | 2004 |
| 2052 | 13100 | 11135 | 3135 | 1965 |
| 2053 | 12840 | 10914 | 2914 | 1926 |
| 2054 | 12590 | 10701.5 | 2701.5 | 1888.5 |
| 2055 | 12340 | 10489 | 2489 | 1851 |
| 2056 | 12090 | 10276.5 | 2276.5 | 1813.5 |
| 2057 | 11850 | 10072.5 | 2072.5 | 1777.5 |
| 2058 | 11620 | 9877 | 1877 | 1743 |

Existing Flare Capacity (SCFM): 8000

LFG Recovery Rate 85%

Fugitive LFG Emission Rate 15%

| | Source Test Data[1] | | | | | | Average Flare | Average Landfill | MW |
|---|---|---|---|---|---|---|---|---|---|
| | Run 1 | | Run 2 | | Run 3 | | | | |
| | LFG-inlet | Flare outlet | LFG-inlet | Flare outlet | LFG-inlet | Flare outlet | | | |
| | ppb | ppb | ppb | ppb | ppb | ppb | ppb | ppb | g/g-mole |
| Hydrogen sulfide[2] | 64400 | 100 | 64400 | 100 | 64400 | 100 | 100 | 64400 | 34.08 |
| Benzene[2] | 3250 | 0.4 | 3250 | 0.4 | 3250 | 0.4 | 0.4 | 3250 | 78.11 |
| Benzylchloride[2] | 190 | 0.75 | 190 | 0.75 | 190 | 0.75 | 0.75 | 190 | 126.58 |
| Chlorobenzene[2] | 160 | 0.5 | 160 | 0.5 | 160 | 0.5 | 0.5 | 160 | 112.56 |
| Dichlorobenzene[2] | 604 | 1 | 604 | 1 | 604 | 1 | 1 | 604 | 147 |
| 31,1-Dichloroethane[2] | 160 | 0.5 | 160 | 0.5 | 160 | 0.5 | 0.5 | 160 | 98.97 |
| 1,2-Dichloroethane[2] | 402 | 0.5 | 402 | 0.5 | 402 | 0.5 | 0.5 | 402 | 98.96 |
| 1,1-Dichloroethylene[2] | 160 | 0.5 | 160 | 0.5 | 160 | 0.5 | 0.5 | 160 | 96.94 |
| Dichloromethane[2] | 648 | 0.5 | 648 | 1.2 | 648 | 1.5 | 1.1 | 648 | 84.94 |
| 1,2-dibromoethane[2] | 160 | 0.5 | 160 | 0.5 | 160 | 0.5 | 0.5 | 160 | 187.86 |
| Perchloroethene[2] | 553 | 0.4 | 553 | 0.4 | 553 | 0.4 | 0.4 | 553 | 165.83 |
| Carbon tetrachloride[2] | 140 | 0.4 | 140 | 0.4 | 140 | 0.4 | 0.4 | 140 | 153.82 |
| Toluene[2] | 26200 | 0.5 | 26200 | 2.48 | 26200 | 2.83 | 1.9 | 26200 | 92.13 |
| 1,1,1-trichloroethane[2] | 140 | 0.4 | 140 | 0.4 | 140 | 0.4 | 0.4 | 140 | 133.4 |
| Trichloroethene[2] | 140 | 0.4 | 140 | 0.4 | 140 | 0.4 | 0.4 | 140 | 131.4 |
| Chloroform[2] | 140 | 0.4 | 140 | 0.4 | 140 | 0.4 | 0.4 | 140 | 119.38 |
| Vinyl chloride[2] | 140 | 0.5 | 140 | 0.5 | 140 | 0.5 | 0.5 | 140 | 62.5 |
| m-Xylene[2] | 12600 | 0.5 | 12600 | 0.5 | 12600 | 0.5 | 0.5 | 12600 | 106.16 |
| o+p-Xylene[2] | 3630 | 0.5 | 3630 | 0.5 | 3630 | 0.5 | 0.5 | 3630 | 106.16 |
| Total Non-methane HC[3] | 7926000 | 3524 | 7926000 | 3524 | 7926000 | 3524 | 3524 | 7926000 | 16.04 |

| 2029 | | 2030 | | 2031 | | 2032 | | 2033 | | 2034 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG |
| 2.77E-05 | 7.59E-02 | 3.34E-05 | 7.92E-02 | 3.90E-05 | 8.25E-02 | 4.44E-05 | 8.56E-02 | 4.98E-05 | 8.88E-02 | 5.50E-05 | 9.18E-02 |
| 2.54E-07 | 8.78E-03 | 3.06E-07 | 9.16E-03 | 3.57E-07 | 9.54E-03 | 4.07E-07 | 9.91E-03 | 4.56E-07 | 1.03E-02 | 5.04E-07 | 1.06E-02 |
| 7.72E-07 | 8.32E-04 | 9.30E-07 | 8.68E-04 | 1.09E-06 | 9.04E-04 | 1.24E-06 | 9.39E-04 | 1.39E-06 | 9.73E-04 | 1.53E-06 | 1.01E-03 |
| 4.58E-07 | 6.23E-04 | 5.52E-07 | 6.50E-04 | 6.44E-07 | 6.77E-04 | 7.34E-07 | 7.03E-04 | 8.22E-07 | 7.28E-04 | 9.09E-07 | 7.53E-04 |
| 1.20E-06 | 3.07E-03 | 1.44E-06 | 3.21E-03 | 1.68E-06 | 3.34E-03 | 1.92E-06 | 3.46E-03 | 2.15E-06 | 3.59E-03 | 2.37E-06 | 3.71E-03 |
| 4.02E-07 | 5.48E-04 | 4.85E-07 | 5.72E-04 | 5.66E-07 | 5.95E-04 | 6.45E-07 | 6.18E-04 | 7.23E-07 | 6.40E-04 | 7.99E-07 | 6.62E-04 |
| 4.02E-07 | 1.38E-03 | 4.85E-07 | 1.44E-03 | 5.66E-07 | 1.49E-03 | 6.45E-07 | 1.55E-03 | 7.23E-07 | 1.61E-03 | 7.99E-07 | 1.66E-03 |
| 3.94E-07 | 5.37E-04 | 4.75E-07 | 5.60E-04 | 5.54E-07 | 5.83E-04 | 6.32E-07 | 6.05E-04 | 7.08E-07 | 6.27E-04 | 7.83E-07 | 6.49E-04 |
| 7.37E-07 | 1.90E-03 | 8.88E-07 | 1.99E-03 | 1.04E-06 | 2.07E-03 | 1.18E-06 | 2.15E-03 | 1.32E-06 | 2.23E-03 | 1.46E-06 | 2.30E-03 |
| 7.64E-07 | 1.04E-03 | 9.20E-07 | 1.09E-03 | 1.07E-06 | 1.13E-03 | 1.22E-06 | 1.17E-03 | 1.37E-06 | 1.22E-03 | 1.52E-06 | 1.26E-03 |
| 5.40E-07 | 3.17E-03 | 6.50E-07 | 3.31E-03 | 7.58E-07 | 3.45E-03 | 8.65E-07 | 3.58E-03 | 9.69E-07 | 3.71E-03 | 1.07E-06 | 3.84E-03 |
| 5.00E-07 | 7.45E-04 | 6.03E-07 | 7.77E-04 | 7.04E-07 | 8.09E-04 | 8.02E-07 | 8.40E-04 | 8.99E-07 | 8.71E-04 | 9.93E-07 | 9.01E-04 |
| 1.45E-06 | 8.35E-02 | 1.75E-06 | 8.71E-02 | 2.04E-06 | 9.07E-02 | 2.33E-06 | 9.42E-02 | 2.61E-06 | 9.76E-02 | 2.88E-06 | 1.01E-01 |
| 4.34E-07 | 6.46E-04 | 5.23E-07 | 6.74E-04 | 6.10E-07 | 7.02E-04 | 6.96E-07 | 7.29E-04 | 7.79E-07 | 7.55E-04 | 8.61E-07 | 7.81E-04 |
| 4.27E-07 | 6.36E-04 | 5.15E-07 | 6.64E-04 | 6.01E-07 | 6.91E-04 | 6.85E-07 | 7.18E-04 | 7.68E-07 | 7.44E-04 | 8.49E-07 | 7.70E-04 |
| 3.88E-07 | 5.78E-04 | 4.68E-07 | 6.03E-04 | 5.46E-07 | 6.28E-04 | 6.23E-07 | 6.52E-04 | 6.97E-07 | 6.76E-04 | 7.71E-07 | 6.99E-04 |
| 2.54E-07 | 3.03E-04 | 3.06E-07 | 3.16E-04 | 3.57E-07 | 3.29E-04 | 4.07E-07 | 3.41E-04 | 4.56E-07 | 3.54E-04 | 5.05E-07 | 3.66E-04 |
| 4.32E-07 | 4.63E-02 | 5.20E-07 | 4.83E-02 | 6.07E-07 | 5.03E-02 | 6.92E-07 | 5.22E-02 | 7.75E-07 | 5.41E-02 | 8.57E-07 | 5.60E-02 |
| 4.32E-07 | 1.33E-02 | 5.20E-07 | 1.39E-02 | 6.07E-07 | 1.45E-02 | 6.92E-07 | 1.50E-02 | 7.75E-07 | 1.56E-02 | 8.57E-07 | 1.61E-02 |
| 4.60E-04 | 4.40E+00 | 5.54E-04 | 4.59E+00 | 6.46E-04 | 4.78E+00 | 7.37E-04 | 4.96E+00 | 8.26E-04 | 5.14E+00 | 9.13E-04 | 5.32E+00 |

**Chiquita Canyon Landfill EIR**

**Operation Emissions - Proposed Project Flare and LFG Toxic Emissions**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Flare exhaust gas (dscfm) | | 31,185 | | 31,185 | | 31,185 | |
| LFG Flow rate (dscfm) | 2166 | | 2166 | | 2166 | | |
| Temperature (°F) | | 1500 | | 1500 | | 1500 | 1500 |
| Flare Stack Informatior | | | | | | | |

| | |
|---|---|
| D (feet) | 12 |
| H (feet) | 50 |

Stack height and diameter are confirmed based on source test report.

[1] Reference: Source test report Horizon Air Measurement Services, INC Test # C33-013-FR, Report February 16, 2012. CCL Compliance Test on Landfill Gas Flare #2. Prepared for the SCAQMD. Initial test 1/5/2012, re-test for PM only on 2/2/12.

[2] Note: All pollutant concentrations noted in the source test report as below the detection limit were assumed to equal 50% of the detection limit concentra 50%

[3] Total Non-Methane Hydrocarbons (ROG) measured as methane equivalent per source test report, so MW of methane used to represent MW of TNMHC.

Calculation:

ppmv = µl/L

MV/24.45 (L/mol)*ppb/1000 = µg

V2 = V1P1/P2*T2/T1

1 µL = 35.32 $ft^3$

g/s = ppb/24.45*Ts/T1*MW*Q/60/35.32/1000000

**Calculated Emissions**

| 2035 | | 2036 | | 2037 | | 2038 | | 2039 | | 2040 | | 2041 | | 2042 | | 2043 | | 2044 | | 2045 | | 2046 | | 2047 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG |
| 6.02E-05 | 9.48E-02 | 6.52E-05 | 9.77E-02 | 7.01E-05 | 1.01E-01 | 7.49E-05 | 1.03E-01 | 7.96E-05 | 1.06E-01 | 7.90E-05 | 1.06E-01 | 7.54E-05 | 1.04E-01 | 7.19E-05 | 1.02E-01 | 6.85E-05 | 9.96E-02 | 6.51E-05 | 9.77E-02 | 6.18E-05 | 9.58E-02 | 5.85E-05 | 9.38E-02 | 5.53E-05 | 9.20E-02 |
| 5.51E-07 | 1.10E-02 | 5.98E-07 | 1.13E-02 | 6.43E-07 | 1.16E-02 | 6.87E-07 | 1.20E-02 | 7.30E-07 | 1.23E-02 | 7.25E-07 | 1.22E-02 | 6.92E-07 | 1.20E-02 | 6.60E-07 | 1.18E-02 | 6.28E-07 | 1.15E-02 | 5.97E-07 | 1.13E-02 | 5.66E-07 | 1.11E-02 | 5.36E-07 | 1.09E-02 | 5.07E-07 | 1.06E-02 |
| 1.68E-06 | 1.04E-03 | 1.82E-06 | 1.07E-03 | 1.95E-06 | 1.10E-03 | 2.09E-06 | 1.13E-03 | 2.22E-06 | 1.16E-03 | 2.20E-06 | 1.16E-03 | 2.10E-06 | 1.14E-03 | 2.00E-06 | 1.11E-03 | 1.91E-06 | 1.09E-03 | 1.81E-06 | 1.07E-03 | 1.72E-06 | 1.05E-03 | 1.63E-06 | 1.03E-03 | 1.54E-06 | 1.01E-03 |
| 9.93E-07 | 7.78E-04 | 1.08E-06 | 8.02E-04 | 1.16E-06 | 8.25E-04 | 1.24E-06 | 8.48E-04 | 1.31E-06 | 8.71E-04 | 1.31E-06 | 8.68E-04 | 1.25E-06 | 8.51E-04 | 1.19E-06 | 8.34E-04 | 1.13E-06 | 8.18E-04 | 1.07E-06 | 8.01E-04 | 1.02E-06 | 7.86E-04 | 9.66E-07 | 7.70E-04 | 9.14E-07 | 7.55E-04 |
| 2.59E-06 | 3.83E-03 | 2.81E-06 | 3.95E-03 | 3.02E-06 | 4.07E-03 | 3.23E-06 | 4.18E-03 | 3.43E-06 | 4.29E-03 | 3.41E-06 | 4.28E-03 | 3.25E-06 | 4.19E-03 | 3.10E-06 | 4.11E-03 | 2.95E-06 | 4.03E-03 | 2.81E-06 | 3.95E-03 | 2.67E-06 | 3.87E-03 | 2.52E-06 | 3.80E-03 | 2.39E-06 | 3.72E-03 |
| 8.73E-07 | 6.84E-04 | 9.46E-07 | 7.05E-04 | 1.02E-06 | 7.26E-04 | 1.09E-06 | 7.46E-04 | 1.16E-06 | 7.66E-04 | 1.15E-06 | 7.63E-04 | 1.10E-06 | 7.48E-04 | 1.04E-06 | 7.33E-04 | 9.94E-07 | 7.19E-04 | 9.45E-07 | 7.05E-04 | 8.97E-07 | 6.91E-04 | 8.50E-07 | 6.77E-04 | 8.04E-07 | 6.64E-04 |
| 8.73E-07 | 1.72E-03 | 9.46E-07 | 1.77E-03 | 1.02E-06 | 1.82E-03 | 1.09E-06 | 1.87E-03 | 1.16E-06 | 1.92E-03 | 1.15E-06 | 1.92E-03 | 1.10E-06 | 1.88E-03 | 1.04E-06 | 1.84E-03 | 9.94E-07 | 1.81E-03 | 9.45E-07 | 1.77E-03 | 8.97E-07 | 1.74E-03 | 8.50E-07 | 1.70E-03 | 8.04E-07 | 1.67E-03 |
| 8.56E-07 | 6.70E-04 | 9.27E-07 | 6.91E-04 | 9.97E-07 | 7.11E-04 | 1.07E-06 | 7.31E-04 | 1.13E-06 | 7.50E-04 | 1.12E-06 | 7.48E-04 | 1.07E-06 | 7.33E-04 | 1.02E-06 | 7.18E-04 | 9.74E-07 | 7.04E-04 | 9.25E-07 | 6.90E-04 | 8.79E-07 | 6.77E-04 | 8.32E-07 | 6.63E-04 | 7.87E-07 | 6.50E-04 |
| 1.60E-06 | 2.38E-03 | 1.73E-06 | 2.45E-03 | 1.86E-06 | 2.52E-03 | 1.99E-06 | 2.59E-03 | 2.12E-06 | 2.66E-03 | 2.10E-06 | 2.65E-03 | 2.01E-06 | 2.60E-03 | 1.91E-06 | 2.55E-03 | 1.82E-06 | 2.50E-03 | 1.73E-06 | 2.45E-03 | 1.64E-06 | 2.40E-03 | 1.56E-06 | 2.35E-03 | 1.47E-06 | 2.31E-03 |
| 1.66E-06 | 1.30E-03 | 1.80E-06 | 1.34E-03 | 1.93E-06 | 1.38E-03 | 2.06E-06 | 1.42E-03 | 2.19E-06 | 1.45E-03 | 2.18E-06 | 1.45E-03 | 2.08E-06 | 1.42E-03 | 1.98E-06 | 1.39E-03 | 1.89E-06 | 1.36E-03 | 1.79E-06 | 1.34E-03 | 1.70E-06 | 1.31E-03 | 1.61E-06 | 1.29E-03 | 1.53E-06 | 1.26E-03 |
| 1.17E-06 | 3.96E-03 | 1.27E-06 | 4.08E-03 | 1.36E-06 | 4.20E-03 | 1.46E-06 | 4.32E-03 | 1.55E-06 | 4.43E-03 | 1.54E-06 | 4.42E-03 | 1.47E-06 | 4.33E-03 | 1.40E-06 | 4.25E-03 | 1.33E-06 | 4.16E-03 | 1.27E-06 | 4.08E-03 | 1.20E-06 | 4.00E-03 | 1.14E-06 | 3.92E-03 | 1.08E-06 | 3.84E-03 |
| 1.09E-06 | 9.30E-04 | 1.18E-06 | 9.59E-04 | 1.27E-06 | 9.87E-04 | 1.35E-06 | 1.01E-03 | 1.44E-06 | 1.04E-03 | 1.43E-06 | 1.04E-03 | 1.36E-06 | 1.02E-03 | 1.30E-06 | 9.97E-04 | 1.24E-06 | 9.78E-04 | 1.17E-06 | 9.58E-04 | 1.12E-06 | 9.39E-04 | 1.06E-06 | 9.21E-04 | 9.99E-07 | 9.03E-04 |
| 3.15E-06 | 1.04E-01 | 3.41E-06 | 1.07E-01 | 3.67E-06 | 1.11E-01 | 3.92E-06 | 1.14E-01 | 4.17E-06 | 1.17E-01 | 4.14E-06 | 1.16E-01 | 3.95E-06 | 1.14E-01 | 3.77E-06 | 1.12E-01 | 3.58E-06 | 1.10E-01 | 3.41E-06 | 1.07E-01 | 3.24E-06 | 1.05E-01 | 3.06E-06 | 1.03E-01 | 2.90E-06 | 1.01E-01 |
| 9.42E-07 | 8.07E-04 | 1.02E-06 | 8.32E-04 | 1.10E-06 | 8.56E-04 | 1.17E-06 | 8.80E-04 | 1.25E-06 | 9.03E-04 | 1.24E-06 | 9.00E-04 | 1.18E-06 | 8.82E-04 | 1.13E-06 | 8.65E-04 | 1.07E-06 | 8.48E-04 | 1.02E-06 | 8.31E-04 | 9.67E-07 | 8.15E-04 | 9.16E-07 | 7.99E-04 | 8.67E-07 | 7.83E-04 |
| 9.28E-07 | 7.95E-04 | 1.01E-06 | 8.19E-04 | 1.08E-06 | 8.43E-04 | 1.16E-06 | 8.66E-04 | 1.23E-06 | 8.89E-04 | 1.22E-06 | 8.87E-04 | 1.16E-06 | 8.69E-04 | 1.11E-06 | 8.52E-04 | 1.06E-06 | 8.35E-04 | 1.00E-06 | 8.19E-04 | 9.53E-07 | 8.03E-04 | 9.02E-07 | 7.87E-04 | 8.54E-07 | 7.71E-04 |
| 8.43E-07 | 7.22E-04 | 9.13E-07 | 7.44E-04 | 9.82E-07 | 7.66E-04 | 1.05E-06 | 7.87E-04 | 1.12E-06 | 8.08E-04 | 1.11E-06 | 8.06E-04 | 1.06E-06 | 7.90E-04 | 1.01E-06 | 7.74E-04 | 9.59E-07 | 7.59E-04 | 9.12E-07 | 7.44E-04 | 8.66E-07 | 7.29E-04 | 8.20E-07 | 7.15E-04 | 7.76E-07 | 7.01E-04 |
| 5.52E-07 | 3.78E-04 | 5.98E-07 | 3.90E-04 | 6.43E-07 | 4.01E-04 | 6.87E-07 | 4.12E-04 | 7.30E-07 | 4.23E-04 | 7.25E-07 | 4.22E-04 | 6.92E-07 | 4.13E-04 | 6.60E-07 | 4.05E-04 | 6.28E-07 | 3.97E-04 | 5.97E-07 | 3.89E-04 | 5.67E-07 | 3.82E-04 | 5.37E-07 | 3.74E-04 | 5.08E-07 | 3.67E-04 |
| 9.37E-07 | 5.78E-02 | 1.02E-06 | 5.96E-02 | 1.09E-06 | 6.13E-02 | 1.17E-06 | 6.30E-02 | 1.24E-06 | 6.47E-02 | 1.23E-06 | 6.45E-02 | 1.18E-06 | 6.32E-02 | 1.12E-06 | 6.20E-02 | 1.07E-06 | 6.07E-02 | 1.01E-06 | 5.95E-02 | 9.62E-07 | 5.84E-02 | 9.11E-07 | 5.72E-02 | 8.62E-07 | 5.61E-02 |
| 9.37E-07 | 1.66E-02 | 1.02E-06 | 1.72E-02 | 1.09E-06 | 1.77E-02 | 1.17E-06 | 1.82E-02 | 1.24E-06 | 1.86E-02 | 1.23E-06 | 1.86E-02 | 1.18E-06 | 1.82E-02 | 1.12E-06 | 1.78E-02 | 1.07E-06 | 1.75E-02 | 1.01E-06 | 1.71E-02 | 9.62E-07 | 1.68E-02 | 9.11E-07 | 1.65E-02 | 8.62E-07 | 1.62E-02 |
| 9.98E-04 | 5.49E+00 | 1.08E-03 | 5.66E+00 | 1.16E-03 | 5.83E+00 | 1.24E-03 | 5.99E+00 | 1.32E-03 | 6.15E+00 | 1.31E-03 | 6.13E+00 | 1.25E-03 | 6.01E+00 | 1.19E-03 | 5.89E+00 | 1.14E-03 | 5.77E+00 | 1.08E-03 | 5.66E+00 | 1.02E-03 | 5.55E+00 | 9.71E-04 | 5.44E+00 | 9.18E-04 | 5.33E+00 |

| 2048 | | 2049 | | 2050 | | 2051 | | 2052 | | 2053 | | 2054 | | 2055 | | 2056 | | 2057 | | 2058 | | 30 year Average | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG | Flare | Fugitive LFG |
| 5.22E-05 | 9.02E-02 | 4.91E-05 | 8.84E-02 | 4.61E-05 | 8.66E-02 | 4.31E-05 | 8.49E-02 | 4.03E-05 | 8.32E-02 | 3.74E-05 | 8.16E-02 | 3.47E-05 | 8.00E-02 | 3.20E-05 | 7.84E-02 | 2.92E-05 | 7.68E-02 | 2.66E-05 | 7.53E-02 | 2.41E-05 | 7.38E-02 | 5.17E-05 | 8.99E-02 |
| 4.78E-07 | 1.04E-02 | 4.50E-07 | 1.02E-02 | 4.22E-07 | 1.00E-02 | 3.95E-07 | 9.82E-03 | 3.69E-07 | 9.63E-03 | 3.43E-07 | 9.44E-03 | 3.18E-07 | 9.25E-03 | 2.93E-07 | 9.07E-03 | 2.68E-07 | 8.88E-03 | 2.44E-07 | 8.71E-03 | 2.21E-07 | 8.54E-03 | 4.74E-07 | 1.04E-02 |
| 1.45E-06 | 9.88E-04 | 1.37E-06 | 9.68E-04 | 1.28E-06 | 9.49E-04 | 1.20E-06 | 9.30E-04 | 1.12E-06 | 9.12E-04 | 1.04E-06 | 8.94E-04 | 9.67E-07 | 8.77E-04 | 8.91E-07 | 8.59E-04 | 8.15E-07 | 8.42E-04 | 7.42E-07 | 8.25E-04 | 6.72E-07 | 8.09E-04 | 1.44E-06 | 9.85E-04 |
| 8.62E-07 | 7.40E-04 | 8.11E-07 | 7.25E-04 | 7.61E-07 | 7.11E-04 | 7.12E-07 | 6.97E-04 | 6.65E-07 | 6.83E-04 | 6.18E-07 | 6.69E-04 | 5.73E-07 | 6.56E-04 | 5.28E-07 | 6.43E-04 | 4.83E-07 | 6.30E-04 | 4.40E-07 | 6.18E-04 | 3.98E-07 | 6.06E-04 | 8.53E-07 | 7.37E-04 |
| 2.25E-06 | 3.65E-03 | 2.12E-06 | 3.58E-03 | 1.99E-06 | 3.50E-03 | 1.86E-06 | 3.43E-03 | 1.74E-06 | 3.37E-03 | 1.61E-06 | 3.30E-03 | 1.50E-06 | 3.24E-03 | 1.38E-06 | 3.17E-03 | 1.26E-06 | 3.11E-03 | 1.15E-06 | 3.05E-03 | 1.04E-06 | 2.99E-03 | 2.23E-06 | 3.64E-03 |
| 7.58E-07 | 6.50E-04 | 7.13E-07 | 6.38E-04 | 6.69E-07 | 6.25E-04 | 6.26E-07 | 6.12E-04 | 5.85E-07 | 6.01E-04 | 5.44E-07 | 5.89E-04 | 5.04E-07 | 5.77E-04 | 4.64E-07 | 5.66E-04 | 4.25E-07 | 5.54E-04 | 3.87E-07 | 5.43E-04 | 3.50E-07 | 5.33E-04 | 7.50E-07 | 6.48E-04 |
| 7.58E-07 | 1.63E-03 | 7.13E-07 | 1.60E-03 | 6.69E-07 | 1.57E-03 | 6.26E-07 | 1.54E-03 | 5.85E-07 | 1.51E-03 | 5.44E-07 | 1.48E-03 | 5.04E-07 | 1.45E-03 | 4.64E-07 | 1.42E-03 | 4.25E-07 | 1.39E-03 | 3.87E-07 | 1.36E-03 | 3.50E-07 | 1.34E-03 | 7.50E-07 | 1.63E-03 |
| 7.42E-07 | 6.37E-04 | 6.99E-07 | 6.25E-04 | 6.55E-07 | 6.12E-04 | 6.13E-07 | 6.00E-04 | 5.73E-07 | 5.88E-04 | 5.32E-07 | 5.77E-04 | 4.94E-07 | 5.65E-04 | 4.55E-07 | 5.54E-04 | 4.16E-07 | 5.43E-04 | 3.79E-07 | 5.32E-04 | 3.43E-07 | 5.22E-04 | 7.35E-07 | 6.35E-04 |
| 1.39E-06 | 2.26E-03 | 1.31E-06 | 2.22E-03 | 1.22E-06 | 2.17E-03 | 1.15E-06 | 2.13E-03 | 1.07E-06 | 2.09E-03 | 9.95E-07 | 2.05E-03 | 9.23E-07 | 2.01E-03 | 8.50E-07 | 1.97E-03 | 7.78E-07 | 1.93E-03 | 7.08E-07 | 1.89E-03 | 6.41E-07 | 1.85E-03 | 1.37E-06 | 2.25E-03 |
| 1.44E-06 | 1.23E-03 | 1.35E-06 | 1.21E-03 | 1.27E-06 | 1.19E-03 | 1.19E-06 | 1.16E-03 | 1.11E-06 | 1.14E-03 | 1.03E-06 | 1.12E-03 | 9.57E-07 | 1.10E-03 | 8.81E-07 | 1.07E-03 | 8.06E-07 | 1.05E-03 | 7.34E-07 | 1.03E-03 | 6.65E-07 | 1.01E-03 | 1.42E-06 | 1.23E-03 |
| 1.02E-06 | 3.77E-03 | 9.56E-07 | 3.69E-03 | 8.97E-07 | 3.62E-03 | 8.39E-07 | 3.55E-03 | 7.84E-07 | 3.48E-03 | 7.29E-07 | 3.41E-03 | 6.76E-07 | 3.34E-03 | 6.22E-07 | 3.28E-03 | 5.69E-07 | 3.21E-03 | 5.18E-07 | 3.15E-03 | 4.69E-07 | 3.08E-03 | 1.01E-06 | 3.75E-03 |
| 9.42E-07 | 8.85E-04 | 8.87E-07 | 8.67E-04 | 8.32E-07 | 8.50E-04 | 7.78E-07 | 8.33E-04 | 7.27E-07 | 8.17E-04 | 6.76E-07 | 8.00E-04 | 6.27E-07 | 7.85E-04 | 5.77E-07 | 7.69E-04 | 5.28E-07 | 7.54E-04 | 4.81E-07 | 7.39E-04 | 4.35E-07 | 7.24E-04 | 9.33E-07 | 8.82E-04 |
| 2.73E-06 | 9.92E-02 | 2.57E-06 | 9.72E-02 | 2.41E-06 | 9.52E-02 | 2.26E-06 | 9.34E-02 | 2.11E-06 | 9.15E-02 | 1.96E-06 | 8.97E-02 | 1.82E-06 | 8.80E-02 | 1.67E-06 | 8.62E-02 | 1.53E-06 | 8.45E-02 | 1.39E-06 | 8.28E-02 | 1.26E-06 | 8.12E-02 | 2.70E-06 | 9.88E-02 |
| 8.17E-07 | 7.67E-04 | 7.69E-07 | 7.52E-04 | 7.21E-07 | 7.37E-04 | 6.75E-07 | 7.22E-04 | 6.31E-07 | 7.08E-04 | 5.86E-07 | 6.94E-04 | 5.43E-07 | 6.81E-04 | 5.01E-07 | 6.67E-04 | 4.58E-07 | 6.54E-04 | 4.17E-07 | 6.41E-04 | 3.78E-07 | 6.28E-04 | 8.09E-07 | 7.65E-04 |
| 8.05E-07 | 7.56E-04 | 7.58E-07 | 7.41E-04 | 7.10E-07 | 7.26E-04 | 6.65E-07 | 7.11E-04 | 6.21E-07 | 6.98E-04 | 5.77E-07 | 6.84E-04 | 5.35E-07 | 6.70E-04 | 4.93E-07 | 6.57E-04 | 4.51E-07 | 6.44E-04 | 4.11E-07 | 6.31E-04 | 3.72E-07 | 6.19E-04 | 7.97E-07 | 7.53E-04 |
| 7.31E-07 | 6.87E-04 | 6.88E-07 | 6.73E-04 | 6.45E-07 | 6.59E-04 | 6.04E-07 | 6.46E-04 | 5.64E-07 | 6.34E-04 | 5.25E-07 | 6.21E-04 | 4.86E-07 | 6.09E-04 | 4.48E-07 | 5.97E-04 | 4.10E-07 | 5.85E-04 | 3.73E-07 | 5.73E-04 | 3.38E-07 | 5.62E-04 | 7.24E-07 | 6.84E-04 |
| 4.78E-07 | 3.59E-04 | 4.50E-07 | 3.52E-04 | 4.22E-07 | 3.45E-04 | 3.95E-07 | 3.38E-04 | 3.69E-07 | 3.32E-04 | 3.43E-07 | 3.25E-04 | 3.18E-07 | 3.19E-04 | 2.93E-07 | 3.13E-04 | 2.68E-07 | 3.06E-04 | 2.44E-07 | 3.00E-04 | 2.21E-07 | 2.94E-04 | 4.74E-07 | 3.58E-04 |
| 8.13E-07 | 5.49E-02 | 7.65E-07 | 5.39E-02 | 7.17E-07 | 5.28E-02 | 6.72E-07 | 5.17E-02 | 6.27E-07 | 5.07E-02 | 5.83E-07 | 4.97E-02 | 5.41E-07 | 4.88E-02 | 4.98E-07 | 4.78E-02 | 4.56E-07 | 4.68E-02 | 4.15E-07 | 4.59E-02 | 3.76E-07 | 4.50E-02 | 8.05E-07 | 5.48E-02 |
| 8.13E-07 | 1.58E-02 | 7.65E-07 | 1.55E-02 | 7.17E-07 | 1.52E-02 | 6.72E-07 | 1.49E-02 | 6.27E-07 | 1.46E-02 | 5.83E-07 | 1.43E-02 | 5.41E-07 | 1.40E-02 | 4.98E-07 | 1.38E-02 | 4.56E-07 | 1.35E-02 | 4.15E-07 | 1.32E-02 | 3.76E-07 | 1.30E-02 | 8.05E-07 | 1.58E-02 |
| 8.65E-04 | 5.22E+00 | 8.15E-04 | 5.12E+00 | 7.64E-04 | 5.02E+00 | 7.15E-04 | 4.92E+00 | 6.68E-04 | 4.82E+00 | 6.21E-04 | 4.73E+00 | 5.76E-04 | 4.63E+00 | 5.30E-04 | 4.54E+00 | 4.85E-04 | 4.45E+00 | 4.42E-04 | 4.36E+00 | 4.00E-04 | 4.28E+00 | 8.57E-04 | 5.20E+00 |

**Chiquita Canyon Landfill EIR**

**Operation Emissions - LandGEM Landfill Gas Generation**

**LandGEM Landfill Gas Generation Data**

| Year | Annual Refuse Acceptange Rate (tons) | Cumulative Refuse Acceptance (tons) | Total LFG Generation (scfm) | Total LFG Recovery (85%) (scfm) | Total Fugitive LFG |
|---|---|---|---|---|---|
| 2017 | 1,671,429 | 33,646,802 | 6,248 | 5,311 | 937 |
| 2018 | 1,894,286 | 35,318,231 | 6,529 | 5,550 | 979 |
| 2019 | 2,117,143 | 37,212,516 | 6,858 | 5,829 | 1,029 |
| 2020 | 2,340,000 | 39,329,659 | 7,235 | 6,150 | 1,085 |
| 2021 | 2,562,857 | 41,669,659 | 7,658 | 6,509 | 1,149 |
| 2022 | 2,785,714 | 44,232,516 | 8,127 | 6,908 | 1,219 |
| 2023 | 3,008,571 | 47,018,231 | 8,641 | 7,345 | 1,296 |
| 2024 | 3,120,000 | 50,026,802 | 9,198 | 7,818 | 1,380 |
| 2025 | 3,120,000 | 53,146,802 | 9,772 | 8,306 | 1,466 |
| 2026 | 3,120,000 | 56,266,802 | 10,330 | 8,781 | 1,550 |
| 2027 | 3,120,000 | 59,386,802 | 10,880 | 9,248 | 1,632 |
| 2028 | 3,120,000 | 62,506,802 | 11,420 | 9,707 | 1,713 |
| 2029 | 3,120,000 | 65,626,802 | 11,950 | 10,158 | 1,793 |
| 2030 | 3,120,000 | 68,746,802 | 12,470 | 10,600 | 1,871 |
| 2031 | 3,120,000 | 71,866,802 | 12,980 | 11,033 | 1,947 |
| 2032 | 3,120,000 | 74,986,802 | 13,480 | 11,458 | 2,022 |
| 2033 | 3,120,000 | 78,106,802 | 13,970 | 11,875 | 2,096 |
| 2034 | 3,120,000 | 81,226,802 | 14,450 | 12,283 | 2,168 |
| 2035 | 3,120,000 | 84,346,802 | 14,920 | 12,682 | 2,238 |
| 2036 | 3,120,000 | 87,466,802 | 15,380 | 13,073 | 2,307 |
| 2037 | 3,120,000 | 90,586,802 | 15,830 | 13,456 | 2,375 |
| 2038 | 3,120,000 | 93,706,802 | 16,270 | 13,830 | 2,441 |
| 2039 | 1,158,710 | 96,826,802 | 16,700 | 14,195 | 2,505 |
| 2040 | 0 | 97,985,512 | 16,650 | 14,153 | 2,498 |
| 2041 | | | 16,320 | 13,872 | 2,448 |
| 2042 | | | 16,000 | 13,600 | 2,400 |
| 2043 | | | 15,680 | 13,328 | 2,352 |
| 2044 | | | 15,370 | 13,065 | 2,306 |
| 2045 | | | 15,070 | 12,810 | 2,261 |
| 2046 | | | 14,770 | 12,555 | 2,216 |
| 2047 | | | 14,480 | 12,308 | 2,172 |
| 2048 | | | 14,190 | 12,062 | 2,129 |
| 2049 | | | 13,910 | 11,824 | 2,087 |
| 2050 | | | 13,630 | 11,586 | 2,045 |
| 2051 | | | 13,360 | 11,356 | 2,004 |
| 2052 | | | 13,100 | 11,135 | 1,965 |
| 2053 | | | 12,840 | 10,914 | 1,926 |
| 2054 | | | 12,590 | 10,702 | 1,889 |
| 2055 | | | 12,340 | 10,489 | 1,851 |
| 2056 | | | 12,090 | 10,277 | 1,814 |
| 2057 | | | 11,850 | 10,073 | 1,778 |
| 2058 | | | 11,620 | 9,877 | 1,743 |
| 2059 | | | 11,390 | 9,682 | 1,709 |
| 2060 | | | 11,160 | 9,486 | 1,674 |
| 2061 | | | 10,940 | 9,299 | 1,641 |
| 2062 | | | 10,720 | 9,112 | 1,608 |
| 2063 | | | 10,510 | 8,934 | 1,577 |
| 2064 | | | 10,300 | 8,755 | 1,545 |
| 2065 | | | 10,100 | 8,585 | 1,515 |
| 2066 | | | 9,900 | 8,415 | 1,485 |
| 2067 | | | 9,704 | 8,248 | 1,456 |
| 2068 | | | 9,512 | 8,085 | 1,427 |
| 2069 | | | 9,324 | 7,925 | 1,399 |
| 2070 | | | 9,139 | 7,768 | 1,371 |
| 2071 | | | 8,958 | 7,614 | 1,344 |
| 2072 | | | 8,781 | 7,464 | 1,317 |
| 2073 | | | 8,607 | 7,316 | 1,291 |
| 2074 | | | 8,437 | 7,171 | 1,266 |
| 2075 | | | 8,269 | 7,029 | 1,240 |
| 2076 | | | 8,106 | 6,890 | 1,216 |
| 2077 | | | 7,945 | 6,753 | 1,192 |
| 2078 | | | 7,788 | 6,620 | 1,168 |
| 2079 | | | 7,634 | 6,489 | 1,145 |
| 2080 | | | 7,483 | 6,361 | 1,122 |
| 2081 | | | 7,334 | 6,234 | 1,100 |
| 2082 | | | 7,189 | 6,111 | 1,078 |
| 2083 | | | 7,047 | 5,990 | 1,057 |
| 2084 | | | 6,907 | 5,871 | 1,036 |
| 2085 | | | 6,770 | 5,755 | 1,016 |
| 2086 | | | 6,636 | 5,641 | 995 |
| 2087 | | | 6,505 | 5,529 | 976 |

**LandGEM Landfill Gas Generation Data: Highest 30 Years**

| Year | Annual Refuse Acceptange Rate (tons) | Cumulative Refuse Acceptance (tons) | Total LFG Generation (scfm) | Total LFG Recovery (85%) (scfm) | Total Fugitive LFG |
|---|---|---|---|---|---|
| 2029 | 3,120,000 | 65,626,802 | 11,950 | 10,158 | 1,793 |
| 2030 | 3,120,000 | 68,746,802 | 12,470 | 10,600 | 1,871 |
| 2031 | 3,120,000 | 71,866,802 | 12,980 | 11,033 | 1,947 |
| 2032 | 3,120,000 | 74,986,802 | 13,480 | 11,458 | 2,022 |
| 2033 | 3,120,000 | 78,106,802 | 13,970 | 11,875 | 2,096 |
| 2034 | 3,120,000 | 81,226,802 | 14,450 | 12,283 | 2,168 |
| 2035 | 3,120,000 | 84,346,802 | 14,920 | 12,682 | 2,238 |
| 2036 | 3,120,000 | 87,466,802 | 15,380 | 13,073 | 2,307 |
| 2037 | 3,120,000 | 90,586,802 | 15,830 | 13,456 | 2,375 |
| 2038 | 3,120,000 | 93,706,802 | 16,270 | 13,830 | 2,441 |
| 2039 | 1,158,710 | 96,826,802 | 16,700 | 14,195 | 2,505 |
| 2040 | 0 | 97,985,512 | 16,650 | 14,153 | 2,498 |
| 2041 | | | 16,320 | 13,872 | 2,448 |
| 2042 | | | 16,000 | 13,600 | 2,400 |
| 2043 | | | 15,680 | 13,328 | 2,352 |
| 2044 | | | 15,370 | 13,065 | 2,306 |
| 2045 | | | 15,070 | 12,810 | 2,261 |
| 2046 | | | 14,770 | 12,555 | 2,216 |
| 2047 | | | 14,480 | 12,308 | 2,172 |
| 2048 | | | 14,190 | 12,062 | 2,129 |
| 2049 | | | 13,910 | 11,824 | 2,087 |
| 2050 | | | 13,630 | 11,586 | 2,045 |
| 2051 | | | 13,360 | 11,356 | 2,004 |
| 2052 | | | 13,100 | 11,135 | 1,965 |
| 2053 | | | 12,840 | 10,914 | 1,926 |
| 2054 | | | 12,590 | 10,702 | 1,889 |
| 2055 | | | 12,340 | 10,489 | 1,851 |
| 2056 | | | 12,090 | 10,277 | 1,814 |
| 2057 | | | 11,850 | 10,073 | 1,778 |
| 2058 | | | 11,620 | 9,877 | 1,743 |

Notes: Data obtained from Golder Associates LandGem Model Summary September 2016

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 20143 | 2014Aerial Lifts | 2014Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2400 | 0.2799 | 0.0509 | 0.0004 | 0.0272 | 0.0251 | 38.1 | 0.0046 | 120 | 3 |
| 2014 | 20144 | 2014Air Compressors | 2014Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3216 | 0.5860 | 0.0758 | 0.0006 | 0.0416 | 0.0383 | 47.0 | 0.0068 | 120 | 4 |
| 2014 | 20146 | 2014Bore/Drill Rigs | 2014Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3426 | 1.4079 | 0.0737 | 0.0021 | 0.0179 | 0.0165 | 188.1 | 0.0066 | 250 | 6 |
| 2014 | 20141 | 2014Cement and Mortar Mixers | 2014Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0644 | 0.0074 | 0.0001 | 0.0020 | 0.0018 | 6.3 | 0.0007 | 15 | 1 |
| 2014 | 20144 | 2014Concrete/Industrial Saws | 2014Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4796 | 0.9256 | 0.0978 | 0.0009 | 0.0538 | 0.0495 | 74.1 | 0.0088 | 120 | 4 |
| 2014 | 20146 | 2014Cranes | 2014Cranes250 | Cranes | 226 | 0.29 | 0.2817 | 0.8958 | 0.0979 | 0.0013 | 0.0317 | 0.0291 | 112.2 | 0.0088 | 250 | 6 |
| 2014 | 20146 | 2014Crawler Tractors | 2014Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4797 | 1.2225 | 0.1672 | 0.0019 | 0.0562 | 0.0517 | 166.1 | 0.0151 | 250 | 6 |
| 2014 | 20144 | 2014Crushing/Proc. Equipment | 2014Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5703 | 1.0378 | 0.1284 | 0.0010 | 0.0704 | 0.0648 | 83.1 | 0.0116 | 120 | 4 |
| 2014 | 20141 | 2014Dumpers/Tenders | 2014Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0317 | 0.0777 | 0.0095 | 0.0001 | 0.0027 | 0.0025 | 7.6 | 0.0009 | 25 | 1 |
| 2014 | 20145 | 2014Excavators | 2014Excavators175 | Excavators | 163 | 0.38 | 0.6660 | 0.8739 | 0.1134 | 0.0013 | 0.0457 | 0.0421 | 112.2 | 0.0102 | 175 | 5 |
| 2014 | 20144 | 2014Forklifts | 2014Forklifts120 | Forklifts | 89 | 0.2 | 0.2158 | 0.2786 | 0.0390 | 0.0004 | 0.0206 | 0.0190 | 31.2 | 0.0035 | 120 | 4 |
| 2014 | 20144 | 2014Generator Sets | 2014Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4857 | 0.9730 | 0.1008 | 0.0009 | 0.0537 | 0.0494 | 77.9 | 0.0091 | 120 | 4 |
| 2014 | 20146 | 2014Graders | 2014Graders175 | Graders | 175 | 0.41 | 0.7331 | 0.9807 | 0.1386 | 0.0014 | 0.0577 | 0.0531 | 123.9 | 0.0125 | 175 | 6 |
| 2014 | 20145 | 2014Off-Highway Tractors | 2014Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8272 | 0.7636 | 0.1960 | 0.0015 | 0.0820 | 0.0755 | 130.4 | 0.0177 | 175 | 5 |
| 2014 | 20147 | 2014Off-Highway Trucks | 2014Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.6134 | 1.9771 | 0.2065 | 0.0027 | 0.0567 | 0.0522 | 272.3 | 0.0186 | 500 | 7 |
| 2014 | 20145 | 2014Other Construction Equipment | 2014Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5867 | 1.0193 | 0.0868 | 0.0012 | 0.0374 | 0.0344 | 106.5 | 0.0078 | 175 | 5 |
| 2014 | 20144 | 2014Other General Industrial Equipmen | 2014Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4435 | 0.4683 | 0.1082 | 0.0007 | 0.0583 | 0.0536 | 62.0 | 0.0098 | 120 | 4 |
| 2014 | 20145 | 2014Other Material Handling Equipment | 2014Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7226 | 0.9425 | 0.1481 | 0.0014 | 0.0631 | 0.0581 | 122.1 | 0.0134 | 175 | 5 |
| 2014 | 20145 | 2014Pavers | 2014Pavers175 | Pavers | 126 | 0.42 | 0.7742 | 0.7467 | 0.1695 | 0.0014 | 0.0720 | 0.0663 | 128.3 | 0.0153 | 175 | 5 |
| 2014 | 20145 | 2014Paving Equipment | 2014Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.6049 | 0.6654 | 0.1323 | 0.0011 | 0.0565 | 0.0519 | 101.0 | 0.0119 | 175 | 5 |
| 2014 | 20141 | 2014Plate Compactors | 2014Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0440 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2014 | 20141 | 2014Pressure Washers | 2014Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0321 | 0.0499 | 0.0068 | 0.0001 | 0.0026 | 0.0024 | 4.9 | 0.0006 | 15 | 1 |
| 2014 | 20144 | 2014Pumps | 2014Pumps120 | Pumps | 84 | 0.74 | 0.4934 | 0.9730 | 0.1049 | 0.0009 | 0.0563 | 0.0518 | 77.9 | 0.0095 | 120 | 4 |
| 2014 | 20144 | 2014Rollers | 2014Rollers120 | Rollers | 81 | 0.38 | 0.4030 | 0.4818 | 0.0921 | 0.0007 | 0.0494 | 0.0454 | 59.0 | 0.0083 | 120 | 4 |
| 2014 | 20145 | 2014Rough Terrain Forklifts | 2014Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4292 | 0.5644 | 0.0877 | 0.0007 | 0.0474 | 0.0436 | 62.4 | 0.0079 | 120 | 5 |
| 2014 | 20146 | 2014Rubber Tired Dozers | 2014Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 1.3307 | 1.3942 | 0.3072 | 0.0026 | 0.1058 | 0.0973 | 264.9 | 0.0277 | 500 | 6 |
| 2014 | 20146 | 2014Rubber Tired Loaders | 2014Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3553 | 0.9841 | 0.1186 | 0.0017 | 0.0375 | 0.0345 | 149.0 | 0.0107 | 250 | 6 |
| 2014 | 20147 | 2014Scrapers | 2014Scrapers500 | Scrapers | 362 | 0.48 | 1.1355 | 2.2601 | 0.3033 | 0.0032 | 0.1012 | 0.0931 | 321.4 | 0.0274 | 500 | 7 |
| 2014 | 20141 | 2014Signal Boards | 2014Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0629 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2014 | 20143 | 2014Skid Steer Loaders | 2014Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2727 | 0.3446 | 0.0380 | 0.0005 | 0.0205 | 0.0189 | 42.8 | 0.0034 | 120 | 3 |
| 2014 | 20146 | 2014Surfacing Equipment | 2014Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.6069 | 1.0416 | 0.1433 | 0.0022 | 0.0516 | 0.0475 | 221.2 | 0.0129 | 500 | 6 |
| 2014 | 20143 | 2014Sweepers/Scrubbers | 2014Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.5098 | 0.4219 | 0.0991 | 0.0009 | 0.0543 | 0.0499 | 75.0 | 0.0089 | 120 | 3 |
| 2014 | 20144 | 2014Tractors/Loaders/Backhoes | 2014Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3503 | 0.5676 | 0.0634 | 0.0006 | 0.0337 | 0.0310 | 51.7 | 0.0057 | 120 | 4 |
| 2014 | 20144 | 2014Trenchers | 2014Trenchers120 | Trenchers | 81 | 0.5 | 0.4640 | 0.6339 | 0.1212 | 0.0008 | 0.0629 | 0.0578 | 64.9 | 0.0109 | 120 | 4 |
| 2014 | 20142 | 2014Welders | 2014Welders50 | Welders | 46 | 0.45 | 0.2652 | 0.2647 | 0.0886 | 0.0003 | 0.0219 | 0.0202 | 26.0 | 0.0080 | 50 | 2 |
| 2015 | 20153 | 2015Aerial Lifts | 2015Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2377 | 0.2669 | 0.0460 | 0.0004 | 0.0246 | 0.0226 | 38.1 | 0.0042 | 120 | 3 |
| 2015 | 20154 | 2015Air Compressors | 2015Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3182 | 0.5530 | 0.0691 | 0.0006 | 0.0375 | 0.0345 | 47.0 | 0.0062 | 120 | 4 |
| 2015 | 20156 | 2015Bore/Drill Rigs | 2015Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3425 | 1.3170 | 0.0681 | 0.0021 | 0.0144 | 0.0132 | 188.1 | 0.0061 | 250 | 6 |
| 2015 | 20151 | 2015Cement and Mortar Mixers | 2015Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0622 | 0.0074 | 0.0001 | 0.0019 | 0.0018 | 6.3 | 0.0007 | 15 | 1 |
| 2015 | 20154 | 2015Concrete/Industrial Saws | 2015Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4759 | 0.8734 | 0.0892 | 0.0009 | 0.0486 | 0.0448 | 74.1 | 0.0080 | 120 | 4 |
| 2015 | 20156 | 2015Cranes | 2015Cranes250 | Cranes | 226 | 0.29 | 0.2713 | 0.8380 | 0.0925 | 0.0013 | 0.0286 | 0.0263 | 112.2 | 0.0083 | 250 | 6 |
| 2015 | 20156 | 2015Crawler Tractors | 2015Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4614 | 1.1437 | 0.1582 | 0.0019 | 0.0514 | 0.0473 | 166.1 | 0.0143 | 250 | 6 |
| 2015 | 20154 | 2015Crushing/Proc. Equipment | 2015Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5646 | 0.9793 | 0.1167 | 0.0010 | 0.0629 | 0.0579 | 83.1 | 0.0105 | 120 | 4 |
| 2015 | 20151 | 2015Dumpers/Tenders | 2015Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0315 | 0.0751 | 0.0093 | 0.0001 | 0.0025 | 0.0023 | 7.6 | 0.0008 | 25 | 1 |
| 2015 | 20155 | 2015Excavators | 2015Excavators175 | Excavators | 163 | 0.38 | 0.6653 | 0.8193 | 0.1052 | 0.0013 | 0.0405 | 0.0372 | 112.2 | 0.0095 | 175 | 5 |
| 2015 | 20154 | 2015Forklifts | 2015Forklifts120 | Forklifts | 89 | 0.2 | 0.2143 | 0.2629 | 0.0345 | 0.0004 | 0.0174 | 0.0160 | 31.2 | 0.0031 | 120 | 4 |
| 2015 | 20154 | 2015Generator Sets | 2015Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4811 | 0.9182 | 0.0910 | 0.0009 | 0.0484 | 0.0445 | 77.9 | 0.0082 | 120 | 4 |
| 2015 | 20156 | 2015Graders | 2015Graders175 | Graders | 175 | 0.41 | 0.7319 | 0.9175 | 0.1299 | 0.0014 | 0.0526 | 0.0484 | 123.9 | 0.0117 | 175 | 6 |
| 2015 | 20155 | 2015Off-Highway Tractors | 2015Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8216 | 0.7159 | 0.1870 | 0.0015 | 0.0771 | 0.0709 | 130.4 | 0.0169 | 175 | 5 |
| 2015 | 20157 | 2015Off-Highway Trucks | 2015Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5949 | 1.8431 | 0.1960 | 0.0027 | 0.0505 | 0.0465 | 272.3 | 0.0177 | 500 | 7 |
| 2015 | 20155 | 2015Other Construction Equipment | 2015Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5864 | 0.9556 | 0.0796 | 0.0012 | 0.0331 | 0.0305 | 106.5 | 0.0072 | 175 | 5 |
| 2015 | 20154 | 2015Other General Industrial Equipmen | 2015Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4387 | 0.4419 | 0.0987 | 0.0007 | 0.0521 | 0.0480 | 62.0 | 0.0089 | 120 | 4 |
| 2015 | 20155 | 2015Other Material Handling Equipment | 2015Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7201 | 0.8836 | 0.1365 | 0.0014 | 0.0567 | 0.0522 | 122.1 | 0.0123 | 175 | 5 |
| 2015 | 20155 | 2015Pavers | 2015Pavers175 | Pavers | 126 | 0.42 | 0.7707 | 0.7000 | 0.1608 | 0.0014 | 0.0673 | 0.0619 | 128.3 | 0.0145 | 175 | 5 |
| 2015 | 20155 | 2015Paving Equipment | 2015Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.6025 | 0.6238 | 0.1254 | 0.0011 | 0.0528 | 0.0486 | 101.0 | 0.0113 | 175 | 5 |
| 2015 | 20151 | 2015Plate Compactors | 2015Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0425 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2015 | 20151 | 2015Pressure Washers | 2015Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0315 | 0.0481 | 0.0065 | 0.0001 | 0.0024 | 0.0022 | 4.9 | 0.0006 | 15 | 1 |
| 2015 | 20154 | 2015Pumps | 2015Pumps120 | Pumps | 84 | 0.74 | 0.4887 | 0.9182 | 0.0949 | 0.0009 | 0.0508 | 0.0467 | 77.9 | 0.0086 | 120 | 4 |
| 2015 | 20154 | 2015Rollers | 2015Rollers120 | Rollers | 81 | 0.38 | 0.4000 | 0.4546 | 0.0857 | 0.0007 | 0.0454 | 0.0418 | 59.0 | 0.0077 | 120 | 4 |
| 2015 | 20155 | 2015Rough Terrain Forklifts | 2015Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4260 | 0.5291 | 0.0801 | 0.0007 | 0.0420 | 0.0387 | 62.4 | 0.0072 | 120 | 5 |
| 2015 | 20156 | 2015Rubber Tired Dozers | 2015Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 1.2456 | 1.3043 | 0.2932 | 0.0026 | 0.0985 | 0.0906 | 264.9 | 0.0265 | 500 | 6 |
| 2015 | 20156 | 2015Rubber Tired Loaders | 2015Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3444 | 0.9206 | 0.1118 | 0.0017 | 0.0337 | 0.0310 | 149.0 | 0.0101 | 250 | 6 |
| 2015 | 20157 | 2015Scrapers | 2015Scrapers500 | Scrapers | 362 | 0.48 | 1.0688 | 2.1069 | 0.2883 | 0.0032 | 0.0930 | 0.0855 | 321.4 | 0.0260 | 500 | 7 |
| 2015 | 20151 | 2015Signal Boards | 2015Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0607 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2015 | 20153 | 2015Skid Steer Loaders | 2015Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2710 | 0.3287 | 0.0334 | 0.0005 | 0.0170 | 0.0156 | 42.8 | 0.0030 | 120 | 3 |
| 2015 | 20156 | 2015Surfacing Equipment | 2015Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.5759 | 0.9744 | 0.1342 | 0.0022 | 0.0468 | 0.0431 | 221.2 | 0.0121 | 500 | 6 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 20153 | 2015Sweepers/Scrubbers | 2015Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.5056 | 0.4024 | 0.0880 | 0.0009 | 0.0466 | 0.0429 | 75.0 | 0.0079 | 120 | 3 |
| 2015 | 20154 | 2015Tractors/Loaders/Backhoes | 2015Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3480 | 0.5356 | 0.0577 | 0.0006 | 0.0293 | 0.0270 | 51.7 | 0.0052 | 120 | 4 |
| 2015 | 20154 | 2015Trenchers | 2015Trenchers120 | Trenchers | 81 | 0.5 | 0.4600 | 0.5982 | 0.1144 | 0.0008 | 0.0590 | 0.0542 | 64.9 | 0.0103 | 120 | 4 |
| 2015 | 20152 | 2015Welders | 2015Welders50 | Welders | 46 | 0.45 | 0.2564 | 0.2556 | 0.0801 | 0.0003 | 0.0200 | 0.0184 | 26.0 | 0.0072 | 50 | 2 |
| 2016 | 20163 | 2016Aerial Lifts | 2016Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2355 | 0.2497 | 0.0413 | 0.0004 | 0.0219 | 0.0201 | 38.1 | 0.0037 | 120 | 3 |
| 2016 | 20164 | 2016Air Compressors | 2016Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3150 | 0.5118 | 0.0624 | 0.0006 | 0.0333 | 0.0307 | 47.0 | 0.0056 | 120 | 4 |
| 2016 | 20166 | 2016Bore/Drill Rigs | 2016Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3425 | 1.2035 | 0.0628 | 0.0021 | 0.0114 | 0.0104 | 188.1 | 0.0057 | 250 | 6 |
| 2016 | 20161 | 2016Cement and Mortar Mixers | 2016Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0589 | 0.0074 | 0.0001 | 0.0019 | 0.0017 | 6.3 | 0.0007 | 15 | 1 |
| 2016 | 20164 | 2016Concrete/Industrial Saws | 2016Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4724 | 0.8082 | 0.0809 | 0.0009 | 0.0436 | 0.0401 | 74.1 | 0.0073 | 120 | 4 |
| 2016 | 20166 | 2016Cranes | 2016Cranes250 | Cranes | 226 | 0.29 | 0.2634 | 0.7658 | 0.0875 | 0.0013 | 0.0259 | 0.0239 | 112.2 | 0.0079 | 250 | 6 |
| 2016 | 20166 | 2016Crawler Tractors | 2016Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4452 | 1.0451 | 0.1496 | 0.0019 | 0.0468 | 0.0431 | 166.1 | 0.0135 | 250 | 6 |
| 2016 | 20164 | 2016Crushing/Proc. Equipment | 2016Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5594 | 0.9062 | 0.1054 | 0.0010 | 0.0555 | 0.0510 | 83.1 | 0.0095 | 120 | 4 |
| 2016 | 20161 | 2016Dumpers/Tenders | 2016Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0314 | 0.0710 | 0.0093 | 0.0001 | 0.0024 | 0.0022 | 7.6 | 0.0008 | 25 | 1 |
| 2016 | 20165 | 2016Excavators | 2016Excavators175 | Excavators | 163 | 0.38 | 0.6648 | 0.7510 | 0.0972 | 0.0013 | 0.0355 | 0.0326 | 112.2 | 0.0088 | 175 | 5 |
| 2016 | 20164 | 2016Forklifts | 2016Forklifts120 | Forklifts | 89 | 0.2 | 0.2133 | 0.2433 | 0.0313 | 0.0004 | 0.0149 | 0.0137 | 31.2 | 0.0028 | 120 | 4 |
| 2016 | 20164 | 2016Generator Sets | 2016Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4767 | 0.8496 | 0.0814 | 0.0009 | 0.0431 | 0.0397 | 77.9 | 0.0073 | 120 | 4 |
| 2016 | 20166 | 2016Graders | 2016Graders175 | Graders | 175 | 0.41 | 0.7310 | 0.8384 | 0.1215 | 0.0014 | 0.0476 | 0.0438 | 123.9 | 0.0110 | 175 | 6 |
| 2016 | 20165 | 2016Off-Highway Tractors | 2016Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8166 | 0.6562 | 0.1782 | 0.0015 | 0.0723 | 0.0665 | 130.4 | 0.0161 | 175 | 5 |
| 2016 | 20167 | 2016Off-Highway Trucks | 2016Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5796 | 1.7090 | 0.1855 | 0.0027 | 0.0448 | 0.0412 | 272.3 | 0.0167 | 500 | 7 |
| 2016 | 20165 | 2016Other Construction Equipment | 2016Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5862 | 0.8759 | 0.0729 | 0.0012 | 0.0291 | 0.0267 | 106.5 | 0.0066 | 175 | 5 |
| 2016 | 20164 | 2016Other General Industrial Equipmen | 2016Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4343 | 0.4090 | 0.0895 | 0.0007 | 0.0461 | 0.0424 | 62.0 | 0.0081 | 120 | 4 |
| 2016 | 20165 | 2016Other Material Handling Equipment | 2016Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7182 | 0.8100 | 0.1251 | 0.0014 | 0.0504 | 0.0463 | 122.1 | 0.0113 | 175 | 5 |
| 2016 | 20165 | 2016Pavers | 2016Pavers175 | Pavers | 126 | 0.42 | 0.7678 | 0.6417 | 0.1524 | 0.0014 | 0.0627 | 0.0576 | 128.3 | 0.0138 | 175 | 5 |
| 2016 | 20165 | 2016Paving Equipment | 2016Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.6004 | 0.5718 | 0.1188 | 0.0011 | 0.0492 | 0.0453 | 101.0 | 0.0107 | 175 | 5 |
| 2016 | 20161 | 2016Plate Compactors | 2016Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0402 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2016 | 20161 | 2016Pressure Washers | 2016Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0312 | 0.0456 | 0.0062 | 0.0001 | 0.0023 | 0.0021 | 4.9 | 0.0006 | 15 | 1 |
| 2016 | 20164 | 2016Pumps | 2016Pumps120 | Pumps | 84 | 0.74 | 0.4842 | 0.8496 | 0.0851 | 0.0009 | 0.0453 | 0.0416 | 77.9 | 0.0077 | 120 | 4 |
| 2016 | 20164 | 2016Rollers | 2016Rollers120 | Rollers | 81 | 0.38 | 0.3971 | 0.4207 | 0.0795 | 0.0007 | 0.0416 | 0.0383 | 59.0 | 0.0072 | 120 | 4 |
| 2016 | 20165 | 2016Rough Terrain Forklifts | 2016Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4231 | 0.4850 | 0.0729 | 0.0007 | 0.0369 | 0.0339 | 62.4 | 0.0066 | 120 | 5 |
| 2016 | 20166 | 2016Rubber Tired Dozers | 2016Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 1.1678 | 1.1918 | 0.2794 | 0.0026 | 0.0915 | 0.0842 | 264.9 | 0.0252 | 500 | 6 |
| 2016 | 20166 | 2016Rubber Tired Loaders | 2016Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3357 | 0.8413 | 0.1056 | 0.0017 | 0.0302 | 0.0278 | 149.0 | 0.0095 | 250 | 6 |
| 2016 | 20167 | 2016Scrapers | 2016Scrapers500 | Scrapers | 362 | 0.48 | 1.0107 | 1.9537 | 0.2736 | 0.0032 | 0.0851 | 0.0783 | 321.4 | 0.0247 | 500 | 7 |
| 2016 | 20161 | 2016Signal Boards | 2016Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0575 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2016 | 20163 | 2016Skid Steer Loaders | 2016Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2695 | 0.3075 | 0.0295 | 0.0005 | 0.0138 | 0.0127 | 42.8 | 0.0027 | 120 | 3 |
| 2016 | 20166 | 2016Surfacing Equipment | 2016Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.5485 | 0.8904 | 0.1260 | 0.0022 | 0.0425 | 0.0391 | 221.2 | 0.0114 | 500 | 6 |
| 2016 | 20163 | 2016Sweepers/Scrubbers | 2016Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.5017 | 0.3764 | 0.0774 | 0.0009 | 0.0392 | 0.0361 | 75.0 | 0.0070 | 120 | 3 |
| 2016 | 20164 | 2016Tractors/Loaders/Backhoes | 2016Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3460 | 0.4956 | 0.0524 | 0.0006 | 0.0253 | 0.0233 | 51.7 | 0.0047 | 120 | 4 |
| 2016 | 20164 | 2016Trenchers | 2016Trenchers120 | Trenchers | 81 | 0.5 | 0.4563 | 0.5536 | 0.1080 | 0.0008 | 0.0551 | 0.0507 | 64.9 | 0.0097 | 120 | 4 |
| 2016 | 20162 | 2016Welders | 2016Welders50 | Welders | 46 | 0.45 | 0.2483 | 0.2419 | 0.0717 | 0.0003 | 0.0181 | 0.0166 | 26.0 | 0.0065 | 50 | 2 |
| 2017 | 20173 | 2017Aerial Lifts | 2017Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2336 | 0.2325 | 0.0368 | 0.0004 | 0.0194 | 0.0178 | 38.1 | 0.0033 | 120 | 3 |
| 2017 | 20174 | 2017Air Compressors | 2017Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3122 | 0.4540 | 0.0562 | 0.0006 | 0.0294 | 0.0270 | 47.0 | 0.0051 | 120 | 4 |
| 2017 | 20176 | 2017Bore/Drill Rigs | 2017Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3426 | 1.0673 | 0.0580 | 0.0021 | 0.0088 | 0.0081 | 188.1 | 0.0052 | 250 | 6 |
| 2017 | 20171 | 2017Cement and Mortar Mixers | 2017Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0556 | 0.0074 | 0.0001 | 0.0018 | 0.0017 | 6.3 | 0.0007 | 15 | 1 |
| 2017 | 20174 | 2017Concrete/Industrial Saws | 2017Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4691 | 0.7170 | 0.0728 | 0.0009 | 0.0385 | 0.0354 | 74.1 | 0.0066 | 120 | 4 |
| 2017 | 20176 | 2017Cranes | 2017Cranes250 | Cranes | 226 | 0.29 | 0.2572 | 0.6791 | 0.0830 | 0.0013 | 0.0235 | 0.0216 | 112.2 | 0.0075 | 250 | 6 |
| 2017 | 20176 | 2017Crawler Tractors | 2017Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4308 | 0.9268 | 0.1413 | 0.0019 | 0.0426 | 0.0391 | 166.1 | 0.0127 | 250 | 6 |
| 2017 | 20174 | 2017Crushing/Proc. Equipment | 2017Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5547 | 0.8039 | 0.0948 | 0.0010 | 0.0484 | 0.0445 | 83.1 | 0.0086 | 120 | 4 |
| 2017 | 20171 | 2017Dumpers/Tenders | 2017Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0314 | 0.0670 | 0.0092 | 0.0001 | 0.0023 | 0.0021 | 7.6 | 0.0008 | 25 | 1 |
| 2017 | 20175 | 2017Excavators | 2017Excavators175 | Excavators | 163 | 0.38 | 0.6644 | 0.6691 | 0.0896 | 0.0013 | 0.0308 | 0.0283 | 112.2 | 0.0081 | 175 | 5 |
| 2017 | 20174 | 2017Forklifts | 2017Forklifts120 | Forklifts | 89 | 0.2 | 0.2125 | 0.2158 | 0.0287 | 0.0004 | 0.0128 | 0.0117 | 31.2 | 0.0026 | 120 | 4 |
| 2017 | 20174 | 2017Generator Sets | 2017Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4728 | 0.7537 | 0.0725 | 0.0009 | 0.0381 | 0.0350 | 77.9 | 0.0065 | 120 | 4 |
| 2017 | 20176 | 2017Graders | 2017Graders175 | Graders | 175 | 0.41 | 0.7301 | 0.7435 | 0.1135 | 0.0014 | 0.0429 | 0.0395 | 123.9 | 0.0102 | 175 | 6 |
| 2017 | 20175 | 2017Off-Highway Tractors | 2017Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8122 | 0.5846 | 0.1697 | 0.0015 | 0.0677 | 0.0623 | 130.4 | 0.0153 | 175 | 5 |
| 2017 | 20177 | 2017Off-Highway Trucks | 2017Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5676 | 1.5080 | 0.1753 | 0.0027 | 0.0397 | 0.0365 | 272.3 | 0.0158 | 500 | 7 |
| 2017 | 20175 | 2017Other Construction Equipment | 2017Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5860 | 0.7804 | 0.0665 | 0.0012 | 0.0252 | 0.0232 | 106.5 | 0.0060 | 175 | 5 |
| 2017 | 20174 | 2017Other General Industrial Equipmen | 2017Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4307 | 0.3628 | 0.0811 | 0.0007 | 0.0404 | 0.0371 | 62.0 | 0.0073 | 120 | 4 |
| 2017 | 20175 | 2017Other Material Handling Equipment | 2017Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7173 | 0.7216 | 0.1146 | 0.0014 | 0.0445 | 0.0409 | 122.1 | 0.0103 | 175 | 5 |
| 2017 | 20175 | 2017Pavers | 2017Pavers175 | Pavers | 126 | 0.42 | 0.7653 | 0.5717 | 0.1443 | 0.0014 | 0.0582 | 0.0536 | 128.3 | 0.0130 | 175 | 5 |
| 2017 | 20175 | 2017Paving Equipment | 2017Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.5987 | 0.5095 | 0.1124 | 0.0011 | 0.0458 | 0.0421 | 101.0 | 0.0101 | 175 | 5 |
| 2017 | 20171 | 2017Plate Compactors | 2017Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0379 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2017 | 20171 | 2017Pressure Washers | 2017Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0310 | 0.0430 | 0.0060 | 0.0001 | 0.0022 | 0.0020 | 4.9 | 0.0005 | 15 | 1 |
| 2017 | 20174 | 2017Pumps | 2017Pumps120 | Pumps | 84 | 0.74 | 0.4802 | 0.7537 | 0.0760 | 0.0009 | 0.0400 | 0.0368 | 77.9 | 0.0069 | 120 | 4 |
| 2017 | 20174 | 2017Rollers | 2017Rollers120 | Rollers | 81 | 0.38 | 0.3944 | 0.3732 | 0.0736 | 0.0007 | 0.0378 | 0.0348 | 59.0 | 0.0066 | 120 | 4 |
| 2017 | 20175 | 2017Rough Terrain Forklifts | 2017Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4203 | 0.4321 | 0.0660 | 0.0007 | 0.0319 | 0.0294 | 62.4 | 0.0060 | 120 | 5 |
| 2017 | 20176 | 2017Rubber Tired Dozers | 2017Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 1.0972 | 1.0569 | 0.2660 | 0.0026 | 0.0849 | 0.0781 | 264.9 | 0.0240 | 500 | 6 |
| 2017 | 20176 | 2017Rubber Tired Loaders | 2017Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3290 | 0.7460 | 0.1000 | 0.0017 | 0.0272 | 0.0250 | 149.0 | 0.0090 | 250 | 6 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 20177 | 2017Scrapers | 2017Scrapers500 | Scrapers | 362 | 0.48 | 0.9602 | 1.7238 | 0.2594 | 0.0032 | 0.0777 | 0.0715 | 321.4 | 0.0234 | 500 | 7 |
| 2017 | 20171 | 2017Signal Boards | 2017Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0542 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2017 | 20173 | 2017Skid Steer Loaders | 2017Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2686 | 0.2863 | 0.0268 | 0.0005 | 0.0114 | 0.0105 | 42.8 | 0.0024 | 120 | 3 |
| 2017 | 20176 | 2017Surfacing Equipment | 2017Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.5248 | 0.7896 | 0.1186 | 0.0022 | 0.0385 | 0.0355 | 221.2 | 0.0107 | 500 | 6 |
| 2017 | 20173 | 2017Sweepers/Scrubbers | 2017Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.4996 | 0.3505 | 0.0701 | 0.0009 | 0.0336 | 0.0309 | 75.0 | 0.0063 | 120 | 3 |
| 2017 | 20174 | 2017Tractors/Loaders/Backhoes | 2017Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3442 | 0.4397 | 0.0477 | 0.0006 | 0.0217 | 0.0199 | 51.7 | 0.0043 | 120 | 4 |
| 2017 | 20174 | 2017Trenchers | 2017Trenchers120 | Trenchers | 81 | 0.5 | 0.4529 | 0.4911 | 0.1018 | 0.0008 | 0.0514 | 0.0473 | 64.9 | 0.0092 | 120 | 4 |
| 2017 | 20172 | 2017Welders | 2017Welders50 | Welders | 46 | 0.45 | 0.2408 | 0.2282 | 0.0638 | 0.0003 | 0.0162 | 0.0149 | 26.0 | 0.0058 | 50 | 2 |
| 2018 | 20183 | 2018Aerial Lifts | 2018Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2319 | 0.2153 | 0.0327 | 0.0004 | 0.0170 | 0.0156 | 38.1 | 0.0029 | 120 | 3 |
| 2018 | 20184 | 2018Air Compressors | 2018Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3097 | 0.3962 | 0.0504 | 0.0006 | 0.0255 | 0.0235 | 47.0 | 0.0045 | 120 | 4 |
| 2018 | 20186 | 2018Bore/Drill Rigs | 2018Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3426 | 0.9310 | 0.0538 | 0.0021 | 0.0068 | 0.0063 | 188.1 | 0.0049 | 250 | 6 |
| 2018 | 20181 | 2018Cement and Mortar Mixers | 2018Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0522 | 0.0074 | 0.0001 | 0.0018 | 0.0017 | 6.3 | 0.0007 | 15 | 1 |
| 2018 | 20184 | 2018Concrete/Industrial Saws | 2018Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4661 | 0.6257 | 0.0650 | 0.0009 | 0.0335 | 0.0308 | 74.1 | 0.0059 | 120 | 4 |
| 2018 | 20186 | 2018Cranes | 2018Cranes250 | Cranes | 226 | 0.29 | 0.2521 | 0.5924 | 0.0787 | 0.0013 | 0.0212 | 0.0195 | 112.2 | 0.0071 | 250 | 6 |
| 2018 | 20186 | 2018Crawler Tractors | 2018Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4179 | 0.8084 | 0.1333 | 0.0019 | 0.0385 | 0.0355 | 166.1 | 0.0120 | 250 | 6 |
| 2018 | 20184 | 2018Crushing/Proc. Equipment | 2018Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5506 | 0.7016 | 0.0849 | 0.0010 | 0.0416 | 0.0383 | 83.1 | 0.0077 | 120 | 4 |
| 2018 | 20181 | 2018Dumpers/Tenders | 2018Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0314 | 0.0630 | 0.0092 | 0.0001 | 0.0023 | 0.0021 | 7.6 | 0.0008 | 25 | 1 |
| 2018 | 20185 | 2018Excavators | 2018Excavators175 | Excavators | 163 | 0.38 | 0.6641 | 0.5872 | 0.0824 | 0.0013 | 0.0264 | 0.0243 | 112.2 | 0.0074 | 175 | 5 |
| 2018 | 20184 | 2018Forklifts | 2018Forklifts120 | Forklifts | 89 | 0.2 | 0.2118 | 0.1884 | 0.0265 | 0.0004 | 0.0108 | 0.0099 | 31.2 | 0.0024 | 120 | 4 |
| 2018 | 20184 | 2018Generator Sets | 2018Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4694 | 0.6578 | 0.0642 | 0.0009 | 0.0333 | 0.0306 | 77.9 | 0.0058 | 120 | 4 |
| 2018 | 20186 | 2018Graders | 2018Graders175 | Graders | 175 | 0.41 | 0.7294 | 0.6485 | 0.1059 | 0.0014 | 0.0385 | 0.0354 | 123.9 | 0.0096 | 175 | 6 |
| 2018 | 20185 | 2018Off-Highway Tractors | 2018Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8085 | 0.5131 | 0.1614 | 0.0015 | 0.0632 | 0.0581 | 130.4 | 0.0146 | 175 | 5 |
| 2018 | 20187 | 2018Off-Highway Trucks | 2018Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5578 | 1.3404 | 0.1656 | 0.0027 | 0.0351 | 0.0323 | 272.3 | 0.0149 | 500 | 7 |
| 2018 | 20185 | 2018Other Construction Equipment | 2018Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5859 | 0.6848 | 0.0608 | 0.0012 | 0.0218 | 0.0200 | 106.5 | 0.0055 | 175 | 5 |
| 2018 | 20184 | 2018Other General Industrial Equipmen | 2018Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4277 | 0.3166 | 0.0732 | 0.0007 | 0.0350 | 0.0322 | 62.0 | 0.0066 | 120 | 4 |
| 2018 | 20185 | 2018Other Material Handling Equipment | 2018Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7171 | 0.6333 | 0.1050 | 0.0014 | 0.0389 | 0.0358 | 122.1 | 0.0095 | 175 | 5 |
| 2018 | 20185 | 2018Pavers | 2018Pavers175 | Pavers | 126 | 0.42 | 0.7632 | 0.5017 | 0.1365 | 0.0014 | 0.0539 | 0.0496 | 128.3 | 0.0123 | 175 | 5 |
| 2018 | 20185 | 2018Paving Equipment | 2018Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.5971 | 0.4471 | 0.1062 | 0.0011 | 0.0424 | 0.0390 | 101.0 | 0.0096 | 175 | 5 |
| 2018 | 20181 | 2018Plate Compactors | 2018Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0356 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2018 | 20181 | 2018Pressure Washers | 2018Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0308 | 0.0404 | 0.0059 | 0.0001 | 0.0021 | 0.0019 | 4.9 | 0.0005 | 15 | 1 |
| 2018 | 20184 | 2018Pumps | 2018Pumps120 | Pumps | 84 | 0.74 | 0.4767 | 0.6578 | 0.0676 | 0.0009 | 0.0350 | 0.0322 | 77.9 | 0.0061 | 120 | 4 |
| 2018 | 20184 | 2018Rollers | 2018Rollers120 | Rollers | 81 | 0.38 | 0.3919 | 0.3257 | 0.0680 | 0.0007 | 0.0341 | 0.0314 | 59.0 | 0.0061 | 120 | 4 |
| 2018 | 20185 | 2018Rough Terrain Forklifts | 2018Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4179 | 0.3792 | 0.0596 | 0.0007 | 0.0273 | 0.0251 | 62.4 | 0.0054 | 120 | 5 |
| 2018 | 20186 | 2018Rubber Tired Dozers | 2018Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 1.0338 | 0.9220 | 0.2531 | 0.0026 | 0.0787 | 0.0724 | 264.9 | 0.0228 | 500 | 6 |
| 2018 | 20186 | 2018Rubber Tired Loaders | 2018Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3237 | 0.6508 | 0.0946 | 0.0017 | 0.0244 | 0.0224 | 149.0 | 0.0085 | 250 | 6 |
| 2018 | 20187 | 2018Scrapers | 2018Scrapers500 | Scrapers | 362 | 0.48 | 0.9165 | 1.5323 | 0.2458 | 0.0032 | 0.0707 | 0.0650 | 321.4 | 0.0222 | 500 | 7 |
| 2018 | 20181 | 2018Signal Boards | 2018Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0510 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2018 | 20183 | 2018Skid Steer Loaders | 2018Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2680 | 0.2651 | 0.0248 | 0.0005 | 0.0095 | 0.0087 | 42.8 | 0.0022 | 120 | 3 |
| 2018 | 20186 | 2018Surfacing Equipment | 2018Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.5047 | 0.6888 | 0.1120 | 0.0022 | 0.0350 | 0.0322 | 221.2 | 0.0101 | 500 | 6 |
| 2018 | 20183 | 2018Sweepers/Scrubbers | 2018Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.4983 | 0.3245 | 0.0647 | 0.0009 | 0.0291 | 0.0267 | 75.0 | 0.0058 | 120 | 3 |
| 2018 | 20184 | 2018Tractors/Loaders/Backhoes | 2018Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3426 | 0.3837 | 0.0435 | 0.0006 | 0.0184 | 0.0169 | 51.7 | 0.0039 | 120 | 4 |
| 2018 | 20184 | 2018Trenchers | 2018Trenchers120 | Trenchers | 81 | 0.5 | 0.4498 | 0.4286 | 0.0959 | 0.0008 | 0.0477 | 0.0439 | 64.9 | 0.0087 | 120 | 4 |
| 2018 | 20182 | 2018Welders | 2018Welders50 | Welders | 46 | 0.45 | 0.2339 | 0.2145 | 0.0563 | 0.0003 | 0.0144 | 0.0132 | 26.0 | 0.0051 | 50 | 2 |
| 2019 | 20193 | 2019Aerial Lifts | 2019Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2304 | 0.1981 | 0.0288 | 0.0004 | 0.0146 | 0.0135 | 38.1 | 0.0026 | 120 | 3 |
| 2019 | 20194 | 2019Air Compressors | 2019Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3075 | 0.3384 | 0.0450 | 0.0006 | 0.0218 | 0.0201 | 47.0 | 0.0041 | 120 | 4 |
| 2019 | 20196 | 2019Bore/Drill Rigs | 2019Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3426 | 0.7948 | 0.0502 | 0.0021 | 0.0054 | 0.0049 | 188.1 | 0.0045 | 250 | 6 |
| 2019 | 20191 | 2019Cement and Mortar Mixers | 2019Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0489 | 0.0074 | 0.0001 | 0.0018 | 0.0017 | 6.3 | 0.0007 | 15 | 1 |
| 2019 | 20194 | 2019Concrete/Industrial Saws | 2019Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4633 | 0.5345 | 0.0579 | 0.0009 | 0.0288 | 0.0265 | 74.1 | 0.0052 | 120 | 4 |
| 2019 | 20196 | 2019Cranes | 2019Cranes250 | Cranes | 226 | 0.29 | 0.2478 | 0.5057 | 0.0745 | 0.0013 | 0.0190 | 0.0175 | 112.2 | 0.0067 | 250 | 6 |
| 2019 | 20196 | 2019Crawler Tractors | 2019Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4065 | 0.6901 | 0.1258 | 0.0019 | 0.0349 | 0.0321 | 166.1 | 0.0114 | 250 | 6 |
| 2019 | 20194 | 2019Crushing/Proc. Equipment | 2019Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5471 | 0.5993 | 0.0760 | 0.0010 | 0.0353 | 0.0325 | 83.1 | 0.0069 | 120 | 4 |
| 2019 | 20191 | 2019Dumpers/Tenders | 2019Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0314 | 0.0590 | 0.0092 | 0.0001 | 0.0022 | 0.0021 | 7.6 | 0.0008 | 25 | 1 |
| 2019 | 20195 | 2019Excavators | 2019Excavators175 | Excavators | 163 | 0.38 | 0.6638 | 0.5053 | 0.0759 | 0.0013 | 0.0227 | 0.0208 | 112.2 | 0.0068 | 175 | 5 |
| 2019 | 20194 | 2019Forklifts | 2019Forklifts120 | Forklifts | 89 | 0.2 | 0.2109 | 0.1609 | 0.0243 | 0.0004 | 0.0089 | 0.0082 | 31.2 | 0.0022 | 120 | 4 |
| 2019 | 20194 | 2019Generator Sets | 2019Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4663 | 0.5619 | 0.0564 | 0.0009 | 0.0287 | 0.0264 | 77.9 | 0.0051 | 120 | 4 |
| 2019 | 20196 | 2019Graders | 2019Graders175 | Graders | 175 | 0.41 | 0.7288 | 0.5536 | 0.0987 | 0.0014 | 0.0343 | 0.0315 | 123.9 | 0.0089 | 175 | 6 |
| 2019 | 20195 | 2019Off-Highway Tractors | 2019Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8053 | 0.4415 | 0.1533 | 0.0015 | 0.0588 | 0.0541 | 130.4 | 0.0138 | 175 | 5 |
| 2019 | 20197 | 2019Off-Highway Trucks | 2019Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5502 | 1.1393 | 0.1568 | 0.0027 | 0.0310 | 0.0285 | 272.3 | 0.0142 | 500 | 7 |
| 2019 | 20195 | 2019Other Construction Equipment | 2019Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5859 | 0.5893 | 0.0562 | 0.0012 | 0.0189 | 0.0174 | 106.5 | 0.0051 | 175 | 5 |
| 2019 | 20194 | 2019Other General Industrial Equipmen | 2019Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4250 | 0.2704 | 0.0658 | 0.0007 | 0.0298 | 0.0274 | 62.0 | 0.0059 | 120 | 4 |
| 2019 | 20195 | 2019Other Material Handling Equipment | 2019Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7172 | 0.5449 | 0.0972 | 0.0014 | 0.0342 | 0.0315 | 122.1 | 0.0088 | 175 | 5 |
| 2019 | 20195 | 2019Pavers | 2019Pavers175 | Pavers | 126 | 0.42 | 0.7615 | 0.4317 | 0.1290 | 0.0014 | 0.0498 | 0.0459 | 128.3 | 0.0116 | 175 | 5 |
| 2019 | 20195 | 2019Paving Equipment | 2019Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.5958 | 0.3847 | 0.1002 | 0.0011 | 0.0391 | 0.0360 | 101.0 | 0.0090 | 175 | 5 |
| 2019 | 20191 | 2019Plate Compactors | 2019Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0334 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2019 | 20191 | 2019Pressure Washers | 2019Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0307 | 0.0378 | 0.0057 | 0.0001 | 0.0019 | 0.0018 | 4.9 | 0.0005 | 15 | 1 |
| 2019 | 20194 | 2019Pumps | 2019Pumps120 | Pumps | 84 | 0.74 | 0.4736 | 0.5619 | 0.0596 | 0.0009 | 0.0302 | 0.0278 | 77.9 | 0.0054 | 120 | 4 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 20194 | 2019Rollers | 2019Rollers120 | Rollers | 81 | 0.38 | 0.3895 | 0.2782 | 0.0626 | 0.0007 | 0.0305 | 0.0280 | 59.0 | 0.0057 | 120 | 4 |
| 2019 | 20195 | 2019Rough Terrain Forklifts | 2019Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4158 | 0.3263 | 0.0539 | 0.0007 | 0.0231 | 0.0212 | 62.4 | 0.0049 | 120 | 5 |
| 2019 | 20196 | 2019Rubber Tired Dozers | 2019Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.9773 | 0.7870 | 0.2407 | 0.0026 | 0.0728 | 0.0670 | 264.9 | 0.0217 | 500 | 6 |
| 2019 | 20196 | 2019Rubber Tired Loaders | 2019Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3194 | 0.5556 | 0.0896 | 0.0017 | 0.0218 | 0.0200 | 149.0 | 0.0081 | 250 | 6 |
| 2019 | 20197 | 2019Scrapers | 2019Scrapers500 | Scrapers | 362 | 0.48 | 0.8785 | 1.3025 | 0.2330 | 0.0032 | 0.0643 | 0.0591 | 321.4 | 0.0210 | 500 | 7 |
| 2019 | 20191 | 2019Signal Boards | 2019Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0477 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2019 | 20193 | 2019Skid Steer Loaders | 2019Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2676 | 0.2439 | 0.0232 | 0.0005 | 0.0079 | 0.0072 | 42.8 | 0.0021 | 120 | 3 |
| 2019 | 20196 | 2019Surfacing Equipment | 2019Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.4875 | 0.5880 | 0.1061 | 0.0022 | 0.0317 | 0.0292 | 221.2 | 0.0096 | 500 | 6 |
| 2019 | 20193 | 2019Sweepers/Scrubbers | 2019Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.4973 | 0.2986 | 0.0600 | 0.0009 | 0.0250 | 0.0230 | 75.0 | 0.0054 | 120 | 3 |
| 2019 | 20194 | 2019Tractors/Loaders/Backhoes | 2019Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3413 | 0.3278 | 0.0398 | 0.0006 | 0.0154 | 0.0142 | 51.7 | 0.0036 | 120 | 4 |
| 2019 | 20194 | 2019Trenchers | 2019Trenchers120 | Trenchers | 81 | 0.5 | 0.4470 | 0.3661 | 0.0903 | 0.0008 | 0.0442 | 0.0406 | 64.9 | 0.0081 | 120 | 4 |
| 2019 | 20192 | 2019Welders | 2019Welders50 | Welders | 46 | 0.45 | 0.2271 | 0.2008 | 0.0490 | 0.0003 | 0.0126 | 0.0116 | 26.0 | 0.0044 | 50 | 2 |
| 2020 | 20203 | 2020Aerial Lifts | 2020Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.2292 | 0.1808 | 0.0259 | 0.0004 | 0.0127 | 0.0117 | 38.1 | 0.0023 | 120 | 3 |
| 2020 | 20204 | 2020Air Compressors | 2020Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3058 | 0.2806 | 0.0408 | 0.0006 | 0.0188 | 0.0173 | 47.0 | 0.0037 | 120 | 4 |
| 2020 | 20206 | 2020Bore/Drill Rigs | 2020Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.3426 | 0.6585 | 0.0474 | 0.0021 | 0.0044 | 0.0040 | 188.1 | 0.0043 | 250 | 6 |
| 2020 | 20201 | 2020Cement and Mortar Mixers | 2020Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0386 | 0.0456 | 0.0074 | 0.0001 | 0.0018 | 0.0017 | 6.3 | 0.0007 | 15 | 1 |
| 2020 | 20204 | 2020Concrete/Industrial Saws | 2020Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4613 | 0.4432 | 0.0524 | 0.0009 | 0.0249 | 0.0229 | 74.1 | 0.0047 | 120 | 4 |
| 2020 | 20206 | 2020Cranes | 2020Cranes250 | Cranes | 226 | 0.29 | 0.2440 | 0.4190 | 0.0704 | 0.0013 | 0.0170 | 0.0157 | 112.2 | 0.0064 | 250 | 6 |
| 2020 | 20206 | 2020Crawler Tractors | 2020Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.3966 | 0.5718 | 0.1188 | 0.0019 | 0.0315 | 0.0290 | 166.1 | 0.0107 | 250 | 6 |
| 2020 | 20204 | 2020Crushing/Proc. Equipment | 2020Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5446 | 0.4970 | 0.0692 | 0.0010 | 0.0302 | 0.0278 | 83.1 | 0.0062 | 120 | 4 |
| 2020 | 20201 | 2020Dumpers/Tenders | 2020Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0314 | 0.0550 | 0.0092 | 0.0001 | 0.0022 | 0.0020 | 7.6 | 0.0008 | 25 | 1 |
| 2020 | 20205 | 2020Excavators | 2020Excavators175 | Excavators | 163 | 0.38 | 0.6637 | 0.4233 | 0.0703 | 0.0013 | 0.0195 | 0.0179 | 112.2 | 0.0063 | 175 | 5 |
| 2020 | 20204 | 2020Forklifts | 2020Forklifts120 | Forklifts | 89 | 0.2 | 0.2102 | 0.1334 | 0.0225 | 0.0004 | 0.0074 | 0.0068 | 31.2 | 0.0020 | 120 | 4 |
| 2020 | 20204 | 2020Generator Sets | 2020Generator Sets120 | Generator Sets | 84 | 0.74 | 0.4641 | 0.4659 | 0.0506 | 0.0009 | 0.0250 | 0.0230 | 77.9 | 0.0046 | 120 | 4 |
| 2020 | 20206 | 2020Graders | 2020Graders175 | Graders | 175 | 0.41 | 0.7282 | 0.4587 | 0.0918 | 0.0014 | 0.0303 | 0.0279 | 123.9 | 0.0083 | 175 | 6 |
| 2020 | 20205 | 2020Off-Highway Tractors | 2020Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.8025 | 0.3699 | 0.1455 | 0.0015 | 0.0547 | 0.0503 | 130.4 | 0.0131 | 175 | 5 |
| 2020 | 20207 | 2020Off-Highway Trucks | 2020Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.5446 | 0.9383 | 0.1488 | 0.0027 | 0.0273 | 0.0251 | 272.3 | 0.0134 | 500 | 7 |
| 2020 | 20205 | 2020Other Construction Equipment | 2020Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5859 | 0.4937 | 0.0524 | 0.0012 | 0.0164 | 0.0151 | 106.5 | 0.0047 | 175 | 5 |
| 2020 | 20204 | 2020Other General Industrial Equipmen | 2020Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.4232 | 0.2243 | 0.0602 | 0.0007 | 0.0256 | 0.0236 | 62.0 | 0.0054 | 120 | 4 |
| 2020 | 20205 | 2020Other Material Handling Equipment | 2020Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.7176 | 0.4565 | 0.0907 | 0.0014 | 0.0301 | 0.0277 | 122.1 | 0.0082 | 175 | 5 |
| 2020 | 20205 | 2020Pavers | 2020Pavers175 | Pavers | 126 | 0.42 | 0.7599 | 0.3617 | 0.1217 | 0.0014 | 0.0459 | 0.0422 | 128.3 | 0.0110 | 175 | 5 |
| 2020 | 20205 | 2020Paving Equipment | 2020Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.5945 | 0.3223 | 0.0944 | 0.0011 | 0.0360 | 0.0331 | 101.0 | 0.0085 | 175 | 5 |
| 2020 | 20201 | 2020Plate Compactors | 2020Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0263 | 0.0311 | 0.0050 | 0.0001 | 0.0012 | 0.0011 | 4.3 | 0.0005 | 15 | 1 |
| 2020 | 20201 | 2020Pressure Washers | 2020Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0305 | 0.0353 | 0.0056 | 0.0001 | 0.0018 | 0.0017 | 4.9 | 0.0005 | 15 | 1 |
| 2020 | 20204 | 2020Pumps | 2020Pumps120 | Pumps | 84 | 0.74 | 0.4713 | 0.4659 | 0.0537 | 0.0009 | 0.0263 | 0.0242 | 77.9 | 0.0048 | 120 | 4 |
| 2020 | 20204 | 2020Rollers | 2020Rollers120 | Rollers | 81 | 0.38 | 0.3873 | 0.2307 | 0.0576 | 0.0007 | 0.0270 | 0.0249 | 59.0 | 0.0052 | 120 | 4 |
| 2020 | 20205 | 2020Rough Terrain Forklifts | 2020Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.4142 | 0.2734 | 0.0495 | 0.0007 | 0.0197 | 0.0181 | 62.4 | 0.0045 | 120 | 5 |
| 2020 | 20206 | 2020Rubber Tired Dozers | 2020Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.9276 | 0.6521 | 0.2291 | 0.0026 | 0.0673 | 0.0619 | 264.9 | 0.0207 | 500 | 6 |
| 2020 | 20206 | 2020Rubber Tired Loaders | 2020Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3159 | 0.4603 | 0.0848 | 0.0017 | 0.0194 | 0.0179 | 149.0 | 0.0077 | 250 | 6 |
| 2020 | 20207 | 2020Scrapers | 2020Scrapers500 | Scrapers | 362 | 0.48 | 0.8455 | 1.0726 | 0.2211 | 0.0032 | 0.0584 | 0.0537 | 321.4 | 0.0200 | 500 | 7 |
| 2020 | 20201 | 2020Signal Boards | 2020Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0377 | 0.0445 | 0.0072 | 0.0001 | 0.0018 | 0.0016 | 6.2 | 0.0006 | 15 | 1 |
| 2020 | 20203 | 2020Skid Steer Loaders | 2020Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.2673 | 0.2227 | 0.0218 | 0.0005 | 0.0064 | 0.0059 | 42.8 | 0.0020 | 120 | 3 |
| 2020 | 20206 | 2020Surfacing Equipment | 2020Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.4728 | 0.4872 | 0.1008 | 0.0022 | 0.0288 | 0.0265 | 221.2 | 0.0091 | 500 | 6 |
| 2020 | 20203 | 2020Sweepers/Scrubbers | 2020Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.4959 | 0.2726 | 0.0555 | 0.0009 | 0.0210 | 0.0193 | 75.0 | 0.0050 | 120 | 3 |
| 2020 | 20204 | 2020Tractors/Loaders/Backhoes | 2020Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.3402 | 0.2718 | 0.0366 | 0.0006 | 0.0129 | 0.0119 | 51.7 | 0.0033 | 120 | 4 |
| 2020 | 20204 | 2020Trenchers | 2020Trenchers120 | Trenchers | 81 | 0.5 | 0.4443 | 0.3036 | 0.0849 | 0.0008 | 0.0408 | 0.0375 | 64.9 | 0.0077 | 120 | 4 |
| 2020 | 20202 | 2020Welders | 2020Welders50 | Welders | 46 | 0.45 | 0.2219 | 0.1871 | 0.0435 | 0.0003 | 0.0110 | 0.0102 | 26.0 | 0.0039 | 50 | 2 |
| 2021 | 20213 | 2021Aerial Lifts | 2021Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0021 | 120 | 3 |
| 2021 | 20214 | 2021Air Compressors | 2021Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0033 | 120 | 4 |
| 2021 | 20216 | 2021Bore/Drill Rigs | 2021Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0041 | 250 | 6 |
| 2021 | 20211 | 2021Cement and Mortar Mixers | 2021Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2021 | 20214 | 2021Concrete/Industrial Saws | 2021Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0044 | 120 | 4 |
| 2021 | 20216 | 2021Cranes | 2021Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0060 | 250 | 6 |
| 2021 | 20216 | 2021Crawler Tractors | 2021Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0101 | 250 | 6 |
| 2021 | 20214 | 2021Crushing/Proc. Equipment | 2021Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0058 | 120 | 4 |
| 2021 | 20211 | 2021Dumpers/Tenders | 2021Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2021 | 20215 | 2021Excavators | 2021Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0059 | 175 | 5 |
| 2021 | 20214 | 2021Forklifts | 2021Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0019 | 120 | 4 |
| 2021 | 20214 | 2021Generator Sets | 2021Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0041 | 120 | 4 |
| 2021 | 20216 | 2021Graders | 2021Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0077 | 175 | 6 |
| 2021 | 20215 | 2021Off-Highway Tractors | 2021Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0124 | 175 | 5 |
| 2021 | 20217 | 2021Off-Highway Trucks | 2021Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0128 | 500 | 7 |
| 2021 | 20215 | 2021Other Construction Equipment | 2021Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0044 | 175 | 5 |
| 2021 | 20214 | 2021Other General Industrial Equipmen | 2021Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0050 | 120 | 4 |
| 2021 | 20215 | 2021Other Material Handling Equipment | 2021Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0075 | 175 | 5 |
| 2021 | 20215 | 2021Pavers | 2021Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0104 | 175 | 5 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 20215 | 2021Paving Equipment | 2021Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0080 | 175 | 5 |
| 2021 | 20211 | 2021Plate Compactors | 2021Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2021 | 20211 | 2021Pressure Washers | 2021Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2021 | 20214 | 2021Pumps | 2021Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0044 | 120 | 4 |
| 2021 | 20214 | 2021Rollers | 2021Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0048 | 120 | 4 |
| 2021 | 20215 | 2021Rough Terrain Forklifts | 2021Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0042 | 120 | 5 |
| 2021 | 20216 | 2021Rubber Tired Dozers | 2021Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0197 | 500 | 6 |
| 2021 | 20216 | 2021Rubber Tired Loaders | 2021Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0073 | 250 | 6 |
| 2021 | 20217 | 2021Scrapers | 2021Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0190 | 500 | 7 |
| 2021 | 20211 | 2021Signal Boards | 2021Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2021 | 20213 | 2021Skid Steer Loaders | 2021Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0019 | 120 | 3 |
| 2021 | 20216 | 2021Surfacing Equipment | 2021Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0087 | 500 | 6 |
| 2021 | 20213 | 2021Sweepers/Scrubbers | 2021Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0046 | 120 | 3 |
| 2021 | 20214 | 2021Tractors/Loaders/Backhoes | 2021Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0031 | 120 | 4 |
| 2021 | 20214 | 2021Trenchers | 2021Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0072 | 120 | 4 |
| 2021 | 20212 | 2021Welders | 2021Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0035 | 50 | 2 |
| 2022 | 20223 | 2022Aerial Lifts | 2022Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0020 | 120 | 3 |
| 2022 | 20224 | 2022Air Compressors | 2022Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0031 | 120 | 4 |
| 2022 | 20226 | 2022Bore/Drill Rigs | 2022Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0040 | 250 | 6 |
| 2022 | 20221 | 2022Cement and Mortar Mixers | 2022Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2022 | 20224 | 2022Concrete/Industrial Saws | 2022Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0040 | 120 | 4 |
| 2022 | 20226 | 2022Cranes | 2022Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0057 | 250 | 6 |
| 2022 | 20226 | 2022Crawler Tractors | 2022Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0096 | 250 | 6 |
| 2022 | 20224 | 2022Crushing/Proc. Equipment | 2022Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0054 | 120 | 4 |
| 2022 | 20221 | 2022Dumpers/Tenders | 2022Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2022 | 20225 | 2022Excavators | 2022Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0055 | 175 | 5 |
| 2022 | 20224 | 2022Forklifts | 2022Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0018 | 120 | 4 |
| 2022 | 20224 | 2022Generator Sets | 2022Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0038 | 120 | 4 |
| 2022 | 20226 | 2022Graders | 2022Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0072 | 175 | 6 |
| 2022 | 20225 | 2022Off-Highway Tractors | 2022Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0118 | 175 | 5 |
| 2022 | 20227 | 2022Off-Highway Trucks | 2022Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0122 | 500 | 7 |
| 2022 | 20225 | 2022Other Construction Equipment | 2022Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0041 | 175 | 5 |
| 2022 | 20224 | 2022Other General Industrial Equipmen | 2022Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0047 | 120 | 4 |
| 2022 | 20225 | 2022Other Material Handling Equipment | 2022Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0071 | 175 | 5 |
| 2022 | 20225 | 2022Pavers | 2022Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0098 | 175 | 5 |
| 2022 | 20225 | 2022Paving Equipment | 2022Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0075 | 175 | 5 |
| 2022 | 20221 | 2022Plate Compactors | 2022Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2022 | 20221 | 2022Pressure Washers | 2022Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2022 | 20224 | 2022Pumps | 2022Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0040 | 120 | 4 |
| 2022 | 20224 | 2022Rollers | 2022Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0044 | 120 | 4 |
| 2022 | 20225 | 2022Rough Terrain Forklifts | 2022Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0039 | 120 | 5 |
| 2022 | 20226 | 2022Rubber Tired Dozers | 2022Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0188 | 500 | 6 |
| 2022 | 20226 | 2022Rubber Tired Loaders | 2022Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0069 | 250 | 6 |
| 2022 | 20227 | 2022Scrapers | 2022Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0181 | 500 | 7 |
| 2022 | 20221 | 2022Signal Boards | 2022Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2022 | 20223 | 2022Skid Steer Loaders | 2022Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0018 | 120 | 3 |
| 2022 | 20226 | 2022Surfacing Equipment | 2022Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0083 | 500 | 6 |
| 2022 | 20223 | 2022Sweepers/Scrubbers | 2022Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0043 | 120 | 3 |
| 2022 | 20224 | 2022Tractors/Loaders/Backhoes | 2022Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0029 | 120 | 4 |
| 2022 | 20224 | 2022Trenchers | 2022Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0068 | 120 | 4 |
| 2022 | 20222 | 2022Welders | 2022Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0032 | 50 | 2 |
| 2023 | 20233 | 2023Aerial Lifts | 2023Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0018 | 120 | 3 |
| 2023 | 20234 | 2023Air Compressors | 2023Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0029 | 120 | 4 |
| 2023 | 20236 | 2023Bore/Drill Rigs | 2023Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2023 | 20231 | 2023Cement and Mortar Mixers | 2023Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2023 | 20234 | 2023Concrete/Industrial Saws | 2023Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0038 | 120 | 4 |
| 2023 | 20236 | 2023Cranes | 2023Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0054 | 250 | 6 |
| 2023 | 20236 | 2023Crawler Tractors | 2023Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0091 | 250 | 6 |
| 2023 | 20234 | 2023Crushing/Proc. Equipment | 2023Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0051 | 120 | 4 |
| 2023 | 20231 | 2023Dumpers/Tenders | 2023Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2023 | 20235 | 2023Excavators | 2023Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0052 | 175 | 5 |
| 2023 | 20234 | 2023Forklifts | 2023Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0017 | 120 | 4 |
| 2023 | 20234 | 2023Generator Sets | 2023Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0035 | 120 | 4 |
| 2023 | 20236 | 2023Graders | 2023Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0067 | 175 | 6 |
| 2023 | 20235 | 2023Off-Highway Tractors | 2023Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0112 | 175 | 5 |
| 2023 | 20237 | 2023Off-Highway Trucks | 2023Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0116 | 500 | 7 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 20235 | 2023Other Construction Equipment | 2023Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0039 | 175 | 5 |
| 2023 | 20234 | 2023Other General Industrial Equipmen | 2023Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0044 | 120 | 4 |
| 2023 | 20235 | 2023Other Material Handling Equipment | 2023Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0067 | 175 | 5 |
| 2023 | 20235 | 2023Pavers | 2023Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0092 | 175 | 5 |
| 2023 | 20235 | 2023Paving Equipment | 2023Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0071 | 175 | 5 |
| 2023 | 20231 | 2023Plate Compactors | 2023Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2023 | 20231 | 2023Pressure Washers | 2023Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2023 | 20234 | 2023Pumps | 2023Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0038 | 120 | 4 |
| 2023 | 20234 | 2023Rollers | 2023Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0041 | 120 | 4 |
| 2023 | 20235 | 2023Rough Terrain Forklifts | 2023Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0037 | 120 | 5 |
| 2023 | 20236 | 2023Rubber Tired Dozers | 2023Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0179 | 500 | 6 |
| 2023 | 20236 | 2023Rubber Tired Loaders | 2023Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0065 | 250 | 6 |
| 2023 | 20237 | 2023Scrapers | 2023Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0173 | 500 | 7 |
| 2023 | 20231 | 2023Signal Boards | 2023Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2023 | 20233 | 2023Skid Steer Loaders | 2023Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0017 | 120 | 3 |
| 2023 | 20236 | 2023Surfacing Equipment | 2023Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0079 | 500 | 6 |
| 2023 | 20233 | 2023Sweepers/Scrubbers | 2023Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0040 | 120 | 3 |
| 2023 | 20234 | 2023Tractors/Loaders/Backhoes | 2023Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0027 | 120 | 4 |
| 2023 | 20234 | 2023Trenchers | 2023Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0064 | 120 | 4 |
| 2023 | 20232 | 2023Welders | 2023Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0029 | 50 | 2 |
| 2024 | 20243 | 2024Aerial Lifts | 2024Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0017 | 120 | 3 |
| 2024 | 20244 | 2024Air Compressors | 2024Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0028 | 120 | 4 |
| 2024 | 20246 | 2024Bore/Drill Rigs | 2024Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2024 | 20241 | 2024Cement and Mortar Mixers | 2024Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2024 | 20244 | 2024Concrete/Industrial Saws | 2024Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0035 | 120 | 4 |
| 2024 | 20246 | 2024Cranes | 2024Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0051 | 250 | 6 |
| 2024 | 20246 | 2024Crawler Tractors | 2024Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0087 | 250 | 6 |
| 2024 | 20244 | 2024Crushing/Proc. Equipment | 2024Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0048 | 120 | 4 |
| 2024 | 20241 | 2024Dumpers/Tenders | 2024Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2024 | 20245 | 2024Excavators | 2024Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0049 | 175 | 5 |
| 2024 | 20244 | 2024Forklifts | 2024Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0016 | 120 | 4 |
| 2024 | 20244 | 2024Generator Sets | 2024Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2024 | 20246 | 2024Graders | 2024Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0063 | 175 | 6 |
| 2024 | 20245 | 2024Off-Highway Tractors | 2024Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0106 | 175 | 5 |
| 2024 | 20247 | 2024Off-Highway Trucks | 2024Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0111 | 500 | 7 |
| 2024 | 20245 | 2024Other Construction Equipment | 2024Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0037 | 175 | 5 |
| 2024 | 20244 | 2024Other General Industrial Equipmen | 2024Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0041 | 120 | 4 |
| 2024 | 20245 | 2024Other Material Handling Equipment | 2024Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0063 | 175 | 5 |
| 2024 | 20245 | 2024Pavers | 2024Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0086 | 175 | 5 |
| 2024 | 20245 | 2024Paving Equipment | 2024Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0066 | 175 | 5 |
| 2024 | 20241 | 2024Plate Compactors | 2024Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2024 | 20241 | 2024Pressure Washers | 2024Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2024 | 20244 | 2024Pumps | 2024Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0035 | 120 | 4 |
| 2024 | 20244 | 2024Rollers | 2024Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0038 | 120 | 4 |
| 2024 | 20245 | 2024Rough Terrain Forklifts | 2024Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0035 | 120 | 5 |
| 2024 | 20246 | 2024Rubber Tired Dozers | 2024Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0171 | 500 | 6 |
| 2024 | 20246 | 2024Rubber Tired Loaders | 2024Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0062 | 250 | 6 |
| 2024 | 20247 | 2024Scrapers | 2024Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0165 | 500 | 7 |
| 2024 | 20241 | 2024Signal Boards | 2024Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2024 | 20243 | 2024Skid Steer Loaders | 2024Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2024 | 20246 | 2024Surfacing Equipment | 2024Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0075 | 500 | 6 |
| 2024 | 20243 | 2024Sweepers/Scrubbers | 2024Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0038 | 120 | 3 |
| 2024 | 20244 | 2024Tractors/Loaders/Backhoes | 2024Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0026 | 120 | 4 |
| 2024 | 20244 | 2024Trenchers | 2024Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0060 | 120 | 4 |
| 2024 | 20242 | 2024Welders | 2024Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0027 | 50 | 2 |
| 2025 | 20253 | 2025Aerial Lifts | 2025Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2025 | 20254 | 2025Air Compressors | 2025Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2025 | 20256 | 2025Bore/Drill Rigs | 2025Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2025 | 20251 | 2025Cement and Mortar Mixers | 2025Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2025 | 20254 | 2025Concrete/Industrial Saws | 2025Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2025 | 20256 | 2025Cranes | 2025Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2025 | 20256 | 2025Crawler Tractors | 2025Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2025 | 20254 | 2025Crushing/Proc. Equipment | 2025Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2025 | 20251 | 2025Dumpers/Tenders | 2025Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2025 | 20255 | 2025Excavators | 2025Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2025 | 20254 | 2025Forklifts | 2025Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | 20254 | 2025Generator Sets | 2025Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2025 | 20256 | 2025Graders | 2025Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2025 | 20255 | 2025Off-Highway Tractors | 2025Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2025 | 20257 | 2025Off-Highway Trucks | 2025Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2025 | 20255 | 2025Other Construction Equipment | 2025Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2025 | 20254 | 2025Other General Industrial Equipmen | 2025Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2025 | 20255 | 2025Other Material Handling Equipment | 2025Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2025 | 20255 | 2025Pavers | 2025Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2025 | 20255 | 2025Paving Equipment | 2025Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2025 | 20251 | 2025Plate Compactors | 2025Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2025 | 20251 | 2025Pressure Washers | 2025Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2025 | 20254 | 2025Pumps | 2025Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2025 | 20254 | 2025Rollers | 2025Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2025 | 20255 | 2025Rough Terrain Forklifts | 2025Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2025 | 20256 | 2025Rubber Tired Dozers | 2025Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2025 | 20256 | 2025Rubber Tired Loaders | 2025Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2025 | 20257 | 2025Scrapers | 2025Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2025 | 20251 | 2025Signal Boards | 2025Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2025 | 20253 | 2025Skid Steer Loaders | 2025Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2025 | 20256 | 2025Surfacing Equipment | 2025Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2025 | 20253 | 2025Sweepers/Scrubbers | 2025Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2025 | 20254 | 2025Tractors/Loaders/Backhoes | 2025Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2025 | 20254 | 2025Trenchers | 2025Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2025 | 20252 | 2025Welders | 2025Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2026 | 20263 | 2026Aerial Lifts | 2026Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2026 | 20264 | 2026Air Compressors | 2026Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2026 | 20266 | 2026Bore/Drill Rigs | 2026Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2026 | 20261 | 2026Cement and Mortar Mixers | 2026Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2026 | 20264 | 2026Concrete/Industrial Saws | 2026Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2026 | 20266 | 2026Cranes | 2026Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2026 | 20266 | 2026Crawler Tractors | 2026Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2026 | 20264 | 2026Crushing/Proc. Equipment | 2026Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2026 | 20261 | 2026Dumpers/Tenders | 2026Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2026 | 20265 | 2026Excavators | 2026Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2026 | 20264 | 2026Forklifts | 2026Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2026 | 20264 | 2026Generator Sets | 2026Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2026 | 20266 | 2026Graders | 2026Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2026 | 20265 | 2026Off-Highway Tractors | 2026Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2026 | 20267 | 2026Off-Highway Trucks | 2026Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2026 | 20265 | 2026Other Construction Equipment | 2026Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2026 | 20264 | 2026Other General Industrial Equipmen | 2026Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2026 | 20265 | 2026Other Material Handling Equipment | 2026Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2026 | 20265 | 2026Pavers | 2026Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2026 | 20265 | 2026Paving Equipment | 2026Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2026 | 20261 | 2026Plate Compactors | 2026Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2026 | 20261 | 2026Pressure Washers | 2026Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2026 | 20264 | 2026Pumps | 2026Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2026 | 20264 | 2026Rollers | 2026Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2026 | 20265 | 2026Rough Terrain Forklifts | 2026Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2026 | 20266 | 2026Rubber Tired Dozers | 2026Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2026 | 20266 | 2026Rubber Tired Loaders | 2026Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2026 | 20267 | 2026Scrapers | 2026Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2026 | 20261 | 2026Signal Boards | 2026Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2026 | 20263 | 2026Skid Steer Loaders | 2026Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2026 | 20266 | 2026Surfacing Equipment | 2026Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2026 | 20263 | 2026Sweepers/Scrubbers | 2026Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2026 | 20264 | 2026Tractors/Loaders/Backhoes | 2026Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2026 | 20264 | 2026Trenchers | 2026Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2026 | 20262 | 2026Welders | 2026Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2027 | 20273 | 2027Aerial Lifts | 2027Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2027 | 20274 | 2027Air Compressors | 2027Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2027 | 20276 | 2027Bore/Drill Rigs | 2027Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2027 | 20271 | 2027Cement and Mortar Mixers | 2027Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2027 | 20274 | 2027Concrete/Industrial Saws | 2027Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2027 | 20276 | 2027Cranes | 2027Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2027 | 20276 | 2027Crawler Tractors | 2027Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | 20274 | 2027Crushing/Proc. Equipment | 2027Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2027 | 20271 | 2027Dumpers/Tenders | 2027Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2027 | 20275 | 2027Excavators | 2027Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2027 | 20274 | 2027Forklifts | 2027Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2027 | 20274 | 2027Generator Sets | 2027Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2027 | 20276 | 2027Graders | 2027Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2027 | 20275 | 2027Off-Highway Tractors | 2027Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2027 | 20277 | 2027Off-Highway Trucks | 2027Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2027 | 20275 | 2027Other Construction Equipment | 2027Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2027 | 20274 | 2027Other General Industrial Equipmen | 2027Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2027 | 20275 | 2027Other Material Handling Equipment | 2027Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2027 | 20275 | 2027Pavers | 2027Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2027 | 20275 | 2027Paving Equipment | 2027Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2027 | 20271 | 2027Plate Compactors | 2027Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2027 | 20271 | 2027Pressure Washers | 2027Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2027 | 20274 | 2027Pumps | 2027Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2027 | 20274 | 2027Rollers | 2027Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2027 | 20275 | 2027Rough Terrain Forklifts | 2027Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2027 | 20276 | 2027Rubber Tired Dozers | 2027Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2027 | 20276 | 2027Rubber Tired Loaders | 2027Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2027 | 20277 | 2027Scrapers | 2027Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2027 | 20271 | 2027Signal Boards | 2027Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2027 | 20273 | 2027Skid Steer Loaders | 2027Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2027 | 20276 | 2027Surfacing Equipment | 2027Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2027 | 20273 | 2027Sweepers/Scrubbers | 2027Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2027 | 20274 | 2027Tractors/Loaders/Backhoes | 2027Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2027 | 20274 | 2027Trenchers | 2027Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2027 | 20272 | 2027Welders | 2027Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2028 | 20283 | 2028Aerial Lifts | 2028Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2028 | 20284 | 2028Air Compressors | 2028Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2028 | 20286 | 2028Bore/Drill Rigs | 2028Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2028 | 20281 | 2028Cement and Mortar Mixers | 2028Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2028 | 20284 | 2028Concrete/Industrial Saws | 2028Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2028 | 20286 | 2028Cranes | 2028Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2028 | 20286 | 2028Crawler Tractors | 2028Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2028 | 20284 | 2028Crushing/Proc. Equipment | 2028Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2028 | 20281 | 2028Dumpers/Tenders | 2028Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2028 | 20285 | 2028Excavators | 2028Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2028 | 20284 | 2028Forklifts | 2028Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2028 | 20284 | 2028Generator Sets | 2028Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2028 | 20286 | 2028Graders | 2028Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2028 | 20285 | 2028Off-Highway Tractors | 2028Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2028 | 20287 | 2028Off-Highway Trucks | 2028Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2028 | 20285 | 2028Other Construction Equipment | 2028Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2028 | 20284 | 2028Other General Industrial Equipmen | 2028Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2028 | 20285 | 2028Other Material Handling Equipment | 2028Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2028 | 20285 | 2028Pavers | 2028Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2028 | 20285 | 2028Paving Equipment | 2028Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2028 | 20281 | 2028Plate Compactors | 2028Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2028 | 20281 | 2028Pressure Washers | 2028Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2028 | 20284 | 2028Pumps | 2028Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2028 | 20284 | 2028Rollers | 2028Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2028 | 20285 | 2028Rough Terrain Forklifts | 2028Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2028 | 20286 | 2028Rubber Tired Dozers | 2028Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2028 | 20286 | 2028Rubber Tired Loaders | 2028Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2028 | 20287 | 2028Scrapers | 2028Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2028 | 20281 | 2028Signal Boards | 2028Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2028 | 20283 | 2028Skid Steer Loaders | 2028Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2028 | 20286 | 2028Surfacing Equipment | 2028Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2028 | 20283 | 2028Sweepers/Scrubbers | 2028Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2028 | 20284 | 2028Tractors/Loaders/Backhoes | 2028Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2028 | 20284 | 2028Trenchers | 2028Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2028 | 20282 | 2028Welders | 2028Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2029 | 20293 | 2029Aerial Lifts | 2029Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2029 | 20294 | 2029Air Compressors | 2029Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2029 | 20296 | 2029Bore/Drill Rigs | 2029Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 20291 | 2029Cement and Mortar Mixers | 2029Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2029 | 20294 | 2029Concrete/Industrial Saws | 2029Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2029 | 20296 | 2029Cranes | 2029Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2029 | 20296 | 2029Crawler Tractors | 2029Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2029 | 20294 | 2029Crushing/Proc. Equipment | 2029Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2029 | 20291 | 2029Dumpers/Tenders | 2029Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2029 | 20295 | 2029Excavators | 2029Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2029 | 20294 | 2029Forklifts | 2029Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2029 | 20294 | 2029Generator Sets | 2029Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2029 | 20296 | 2029Graders | 2029Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2029 | 20295 | 2029Off-Highway Tractors | 2029Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2029 | 20297 | 2029Off-Highway Trucks | 2029Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2029 | 20295 | 2029Other Construction Equipment | 2029Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2029 | 20294 | 2029Other General Industrial Equipmen | 2029Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2029 | 20295 | 2029Other Material Handling Equipment | 2029Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2029 | 20295 | 2029Pavers | 2029Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2029 | 20295 | 2029Paving Equipment | 2029Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2029 | 20291 | 2029Plate Compactors | 2029Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2029 | 20291 | 2029Pressure Washers | 2029Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2029 | 20294 | 2029Pumps | 2029Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2029 | 20294 | 2029Rollers | 2029Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2029 | 20295 | 2029Rough Terrain Forklifts | 2029Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2029 | 20296 | 2029Rubber Tired Dozers | 2029Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2029 | 20296 | 2029Rubber Tired Loaders | 2029Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2029 | 20297 | 2029Scrapers | 2029Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2029 | 20291 | 2029Signal Boards | 2029Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2029 | 20293 | 2029Skid Steer Loaders | 2029Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2029 | 20296 | 2029Surfacing Equipment | 2029Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2029 | 20293 | 2029Sweepers/Scrubbers | 2029Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2029 | 20294 | 2029Tractors/Loaders/Backhoes | 2029Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2029 | 20294 | 2029Trenchers | 2029Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2029 | 20292 | 2029Welders | 2029Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2030 | 20303 | 2030Aerial Lifts | 2030Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2030 | 20304 | 2030Air Compressors | 2030Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2030 | 20306 | 2030Bore/Drill Rigs | 2030Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2030 | 20301 | 2030Cement and Mortar Mixers | 2030Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2030 | 20304 | 2030Concrete/Industrial Saws | 2030Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2030 | 20306 | 2030Cranes | 2030Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2030 | 20306 | 2030Crawler Tractors | 2030Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2030 | 20304 | 2030Crushing/Proc. Equipment | 2030Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2030 | 20301 | 2030Dumpers/Tenders | 2030Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2030 | 20305 | 2030Excavators | 2030Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2030 | 20304 | 2030Forklifts | 2030Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2030 | 20304 | 2030Generator Sets | 2030Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2030 | 20306 | 2030Graders | 2030Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2030 | 20305 | 2030Off-Highway Tractors | 2030Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2030 | 20307 | 2030Off-Highway Trucks | 2030Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2030 | 20305 | 2030Other Construction Equipment | 2030Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2030 | 20304 | 2030Other General Industrial Equipmen | 2030Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2030 | 20305 | 2030Other Material Handling Equipment | 2030Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2030 | 20305 | 2030Pavers | 2030Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2030 | 20305 | 2030Paving Equipment | 2030Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2030 | 20301 | 2030Plate Compactors | 2030Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2030 | 20301 | 2030Pressure Washers | 2030Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2030 | 20304 | 2030Pumps | 2030Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2030 | 20304 | 2030Rollers | 2030Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2030 | 20305 | 2030Rough Terrain Forklifts | 2030Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2030 | 20306 | 2030Rubber Tired Dozers | 2030Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2030 | 20306 | 2030Rubber Tired Loaders | 2030Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2030 | 20307 | 2030Scrapers | 2030Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2030 | 20301 | 2030Signal Boards | 2030Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2030 | 20303 | 2030Skid Steer Loaders | 2030Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2030 | 20306 | 2030Surfacing Equipment | 2030Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2030 | 20303 | 2030Sweepers/Scrubbers | 2030Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2030 | 20304 | 2030Tractors/Loaders/Backhoes | 2030Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2030 | 20304 | 2030Trenchers | 2030Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 20302 | 2030Welders | 2030Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2031 | 20313 | 2031Aerial Lifts | 2031Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2031 | 20314 | 2031Air Compressors | 2031Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2031 | 20316 | 2031Bore/Drill Rigs | 2031Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2031 | 20311 | 2031Cement and Mortar Mixers | 2031Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2031 | 20314 | 2031Concrete/Industrial Saws | 2031Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2031 | 20316 | 2031Cranes | 2031Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2031 | 20316 | 2031Crawler Tractors | 2031Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2031 | 20314 | 2031Crushing/Proc. Equipment | 2031Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2031 | 20311 | 2031Dumpers/Tenders | 2031Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2031 | 20315 | 2031Excavators | 2031Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2031 | 20314 | 2031Forklifts | 2031Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2031 | 20314 | 2031Generator Sets | 2031Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2031 | 20316 | 2031Graders | 2031Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2031 | 20315 | 2031Off-Highway Tractors | 2031Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2031 | 20317 | 2031Off-Highway Trucks | 2031Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2031 | 20315 | 2031Other Construction Equipment | 2031Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2031 | 20314 | 2031Other General Industrial Equipmen | 2031Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2031 | 20315 | 2031Other Material Handling Equipment | 2031Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2031 | 20315 | 2031Pavers | 2031Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2031 | 20315 | 2031Paving Equipment | 2031Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2031 | 20311 | 2031Plate Compactors | 2031Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2031 | 20311 | 2031Pressure Washers | 2031Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2031 | 20314 | 2031Pumps | 2031Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2031 | 20314 | 2031Rollers | 2031Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2031 | 20315 | 2031Rough Terrain Forklifts | 2031Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2031 | 20316 | 2031Rubber Tired Dozers | 2031Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2031 | 20316 | 2031Rubber Tired Loaders | 2031Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2031 | 20317 | 2031Scrapers | 2031Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2031 | 20311 | 2031Signal Boards | 2031Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2031 | 20313 | 2031Skid Steer Loaders | 2031Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2031 | 20316 | 2031Surfacing Equipment | 2031Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2031 | 20313 | 2031Sweepers/Scrubbers | 2031Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2031 | 20314 | 2031Tractors/Loaders/Backhoes | 2031Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2031 | 20314 | 2031Trenchers | 2031Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2031 | 20312 | 2031Welders | 2031Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2033 | 20333 | 2033Aerial Lifts | 2033Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2033 | 20334 | 2033Air Compressors | 2033Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2033 | 20336 | 2033Bore/Drill Rigs | 2033Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2033 | 20331 | 2033Cement and Mortar Mixers | 2033Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2033 | 20334 | 2033Concrete/Industrial Saws | 2033Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2033 | 20336 | 2033Cranes | 2033Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2033 | 20336 | 2033Crawler Tractors | 2033Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2033 | 20334 | 2033Crushing/Proc. Equipment | 2033Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2033 | 20331 | 2033Dumpers/Tenders | 2033Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2033 | 20335 | 2033Excavators | 2033Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2033 | 20334 | 2033Forklifts | 2033Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2033 | 20334 | 2033Generator Sets | 2033Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2033 | 20336 | 2033Graders | 2033Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2033 | 20335 | 2033Off-Highway Tractors | 2033Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2033 | 20337 | 2033Off-Highway Trucks | 2033Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2033 | 20335 | 2033Other Construction Equipment | 2033Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2033 | 20334 | 2033Other General Industrial Equipmen | 2033Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2033 | 20335 | 2033Other Material Handling Equipment | 2033Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2033 | 20335 | 2033Pavers | 2033Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2033 | 20335 | 2033Paving Equipment | 2033Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2033 | 20331 | 2033Plate Compactors | 2033Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2033 | 20331 | 2033Pressure Washers | 2033Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2033 | 20334 | 2033Pumps | 2033Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2033 | 20334 | 2033Rollers | 2033Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2033 | 20335 | 2033Rough Terrain Forklifts | 2033Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2033 | 20336 | 2033Rubber Tired Dozers | 2033Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2033 | 20336 | 2033Rubber Tired Loaders | 2033Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2033 | 20337 | 2033Scrapers | 2033Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2033 | 20331 | 2033Signal Boards | 2033Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2033 | 20333 | 2033Skid Steer Loaders | 2033Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 20336 | 2033Surfacing Equipment | 2033Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2033 | 20333 | 2033Sweepers/Scrubbers | 2033Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2033 | 20334 | 2033Tractors/Loaders/Backhoes | 2033Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2033 | 20334 | 2033Trenchers | 2033Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2033 | 20332 | 2033Welders | 2033Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2035 | 20353 | 2035Aerial Lifts | 2035Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2035 | 20354 | 2035Air Compressors | 2035Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2035 | 20356 | 2035Bore/Drill Rigs | 2035Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2035 | 20351 | 2035Cement and Mortar Mixers | 2035Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2035 | 20354 | 2035Concrete/Industrial Saws | 2035Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2035 | 20356 | 2035Cranes | 2035Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2035 | 20356 | 2035Crawler Tractors | 2035Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2035 | 20354 | 2035Crushing/Proc. Equipment | 2035Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2035 | 20351 | 2035Dumpers/Tenders | 2035Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2035 | 20355 | 2035Excavators | 2035Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2035 | 20354 | 2035Forklifts | 2035Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2035 | 20354 | 2035Generator Sets | 2035Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2035 | 20356 | 2035Graders | 2035Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2035 | 20355 | 2035Off-Highway Tractors | 2035Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2035 | 20357 | 2035Off-Highway Trucks | 2035Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2035 | 20355 | 2035Other Construction Equipment | 2035Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2035 | 20354 | 2035Other General Industrial Equipmen | 2035Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2035 | 20355 | 2035Other Material Handling Equipment | 2035Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2035 | 20355 | 2035Pavers | 2035Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2035 | 20355 | 2035Paving Equipment | 2035Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2035 | 20351 | 2035Plate Compactors | 2035Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2035 | 20351 | 2035Pressure Washers | 2035Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2035 | 20354 | 2035Pumps | 2035Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2035 | 20354 | 2035Rollers | 2035Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2035 | 20355 | 2035Rough Terrain Forklifts | 2035Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2035 | 20356 | 2035Rubber Tired Dozers | 2035Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2035 | 20356 | 2035Rubber Tired Loaders | 2035Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2035 | 20357 | 2035Scrapers | 2035Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2035 | 20351 | 2035Signal Boards | 2035Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2035 | 20353 | 2035Skid Steer Loaders | 2035Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2035 | 20356 | 2035Surfacing Equipment | 2035Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2035 | 20353 | 2035Sweepers/Scrubbers | 2035Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2035 | 20354 | 2035Tractors/Loaders/Backhoes | 2035Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2035 | 20354 | 2035Trenchers | 2035Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2035 | 20352 | 2035Welders | 2035Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2037 | 20373 | 2037Aerial Lifts | 2037Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2037 | 20374 | 2037Air Compressors | 2037Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2037 | 20376 | 2037Bore/Drill Rigs | 2037Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2037 | 20371 | 2037Cement and Mortar Mixers | 2037Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2037 | 20374 | 2037Concrete/Industrial Saws | 2037Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2037 | 20376 | 2037Cranes | 2037Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2037 | 20376 | 2037Crawler Tractors | 2037Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2037 | 20374 | 2037Crushing/Proc. Equipment | 2037Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2037 | 20371 | 2037Dumpers/Tenders | 2037Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2037 | 20375 | 2037Excavators | 2037Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2037 | 20374 | 2037Forklifts | 2037Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2037 | 20374 | 2037Generator Sets | 2037Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2037 | 20376 | 2037Graders | 2037Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2037 | 20375 | 2037Off-Highway Tractors | 2037Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2037 | 20377 | 2037Off-Highway Trucks | 2037Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2037 | 20375 | 2037Other Construction Equipment | 2037Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2037 | 20374 | 2037Other General Industrial Equipmen | 2037Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2037 | 20375 | 2037Other Material Handling Equipment | 2037Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2037 | 20375 | 2037Pavers | 2037Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2037 | 20375 | 2037Paving Equipment | 2037Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2037 | 20371 | 2037Plate Compactors | 2037Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2037 | 20371 | 2037Pressure Washers | 2037Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2037 | 20374 | 2037Pumps | 2037Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2037 | 20374 | 2037Rollers | 2037Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2037 | 20375 | 2037Rough Terrain Forklifts | 2037Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2037 | 20376 | 2037Rubber Tired Dozers | 2037Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 20376 | 2037Rubber Tired Loaders | 2037Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2037 | 20377 | 2037Scrapers | 2037Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2037 | 20371 | 2037Signal Boards | 2037Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2037 | 20373 | 2037Skid Steer Loaders | 2037Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2037 | 20376 | 2037Surfacing Equipment | 2037Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2037 | 20373 | 2037Sweepers/Scrubbers | 2037Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2037 | 20374 | 2037Tractors/Loaders/Backhoes | 2037Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2037 | 20374 | 2037Trenchers | 2037Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2037 | 20372 | 2037Welders | 2037Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2038 | 20383 | 2038Aerial Lifts | 2038Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2038 | 20384 | 2038Air Compressors | 2038Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2038 | 20386 | 2038Bore/Drill Rigs | 2038Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2038 | 20381 | 2038Cement and Mortar Mixers | 2038Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2038 | 20384 | 2038Concrete/Industrial Saws | 2038Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2038 | 20386 | 2038Cranes | 2038Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2038 | 20386 | 2038Crawler Tractors | 2038Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2038 | 20384 | 2038Crushing/Proc. Equipment | 2038Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2038 | 20381 | 2038Dumpers/Tenders | 2038Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2038 | 20385 | 2038Excavators | 2038Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2038 | 20384 | 2038Forklifts | 2038Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2038 | 20384 | 2038Generator Sets | 2038Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2038 | 20386 | 2038Graders | 2038Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2038 | 20385 | 2038Off-Highway Tractors | 2038Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2038 | 20387 | 2038Off-Highway Trucks | 2038Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2038 | 20385 | 2038Other Construction Equipment | 2038Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2038 | 20384 | 2038Other General Industrial Equipmen | 2038Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2038 | 20385 | 2038Other Material Handling Equipment | 2038Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2038 | 20385 | 2038Pavers | 2038Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2038 | 20385 | 2038Paving Equipment | 2038Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2038 | 20381 | 2038Plate Compactors | 2038Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2038 | 20381 | 2038Pressure Washers | 2038Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2038 | 20384 | 2038Pumps | 2038Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2038 | 20384 | 2038Rollers | 2038Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2038 | 20385 | 2038Rough Terrain Forklifts | 2038Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2038 | 20386 | 2038Rubber Tired Dozers | 2038Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2038 | 20386 | 2038Rubber Tired Loaders | 2038Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2038 | 20387 | 2038Scrapers | 2038Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2038 | 20381 | 2038Signal Boards | 2038Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2038 | 20383 | 2038Skid Steer Loaders | 2038Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2038 | 20386 | 2038Surfacing Equipment | 2038Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2038 | 20383 | 2038Sweepers/Scrubbers | 2038Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2038 | 20384 | 2038Tractors/Loaders/Backhoes | 2038Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2038 | 20384 | 2038Trenchers | 2038Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2038 | 20382 | 2038Welders | 2038Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2041 | 20413 | 2041Aerial Lifts | 2041Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2041 | 20414 | 2041Air Compressors | 2041Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2041 | 20416 | 2041Bore/Drill Rigs | 2041Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2041 | 20411 | 2041Cement and Mortar Mixers | 2041Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2041 | 20414 | 2041Concrete/Industrial Saws | 2041Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2041 | 20416 | 2041Cranes | 2041Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2041 | 20416 | 2041Crawler Tractors | 2041Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2041 | 20414 | 2041Crushing/Proc. Equipment | 2041Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2041 | 20411 | 2041Dumpers/Tenders | 2041Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2041 | 20415 | 2041Excavators | 2041Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2041 | 20414 | 2041Forklifts | 2041Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2041 | 20414 | 2041Generator Sets | 2041Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2041 | 20416 | 2041Graders | 2041Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2041 | 20415 | 2041Off-Highway Tractors | 2041Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2041 | 20417 | 2041Off-Highway Trucks | 2041Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2041 | 20415 | 2041Other Construction Equipment | 2041Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2041 | 20414 | 2041Other General Industrial Equipmen | 2041Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2041 | 20415 | 2041Other Material Handling Equipment | 2041Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2041 | 20415 | 2041Pavers | 2041Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2041 | 20415 | 2041Paving Equipment | 2041Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2041 | 20411 | 2041Plate Compactors | 2041Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2041 | 20411 | 2041Pressure Washers | 2041Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |

**Off-road Construction Equipment Emission Factors (lb/hour): Construction**

| Year | Year+Range | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | LEVEL | RANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2041 | 20414 | 2041Pumps | 2041Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2041 | 20414 | 2041Rollers | 2041Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2041 | 20415 | 2041Rough Terrain Forklifts | 2041Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 5 |
| 2041 | 20416 | 2041Rubber Tired Dozers | 2041Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2041 | 20416 | 2041Rubber Tired Loaders | 2041Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2041 | 20417 | 2041Scrapers | 2041Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2041 | 20411 | 2041Signal Boards | 2041Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2041 | 20413 | 2041Skid Steer Loaders | 2041Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2041 | 20416 | 2041Surfacing Equipment | 2041Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2041 | 20413 | 2041Sweepers/Scrubbers | 2041Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2041 | 20414 | 2041Tractors/Loaders/Backhoes | 2041Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2041 | 20414 | 2041Trenchers | 2041Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2041 | 20412 | 2041Welders | 2041Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |

Source: SCAQMD CEQA Handbook website: http://sfprod.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors
Emission factors only available up to 2025; therefore, it was conservatively assumed that the emission factors for years 2026 through 2035 were the same as 2025.
After 2020, NOx/PM10/PM2.5/CO/VOC emission factors taken as the Tier 4f emission standards per the ARB's Diesel Off-road Equipment Regulation Table 3 (13 CCR 2449).
Emission factors for PM2.5 not available; therefore, it was assumed that 92% of diesel off-road equipment PM10 emissions were PM2.5 (SCAQMD Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology, October 2006; Appendix A – Updated CEIDARS List with PM2.5 Fractions, http://www.aqmd.gov/ceqa/handbook/PM2_5/finalAppA.doc).
Default hp and load factor taken from CalEEMod User Guide Appendix D, Table 3.3 (September 2013).

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 2014Aerial Lifts | 2014Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0046 | 120 | 3 |
| 2014 | 2014Air Compressors | 2014Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0068 | 120 | 4 |
| 2014 | 2014Bore/Drill Rigs | 2014Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0066 | 250 | 6 |
| 2014 | 2014Cement and Mortar Mixers | 2014Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2014 | 2014Concrete/Industrial Saws | 2014Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0088 | 120 | 4 |
| 2014 | 2014Cranes | 2014Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0088 | 250 | 6 |
| 2014 | 2014Crawler Tractors | 2014Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0151 | 250 | 6 |
| 2014 | 2014Crushing/Proc. Equipment | 2014Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0116 | 120 | 4 |
| 2014 | 2014Dumpers/Tenders | 2014Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0009 | 25 | 1 |
| 2014 | 2014Excavators | 2014Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0102 | 175 | 5 |
| 2014 | 2014Forklifts | 2014Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0035 | 120 | 4 |
| 2014 | 2014Generator Sets | 2014Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0091 | 120 | 4 |
| 2014 | 2014Graders | 2014Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0125 | 175 | 6 |
| 2014 | 2014Off-Highway Tractors | 2014Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0177 | 175 | 5 |
| 2014 | 2014Off-Highway Trucks | 2014Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0186 | 500 | 7 |
| 2014 | 2014Other Construction Equipment | 2014Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0078 | 175 | 5 |
| 2014 | 2014Other General Industrial Equipmen | 2014Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0098 | 120 | 4 |
| 2014 | 2014Other Material Handling Equipment | 2014Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0134 | 175 | 5 |
| 2014 | 2014Pavers | 2014Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0153 | 175 | 5 |
| 2014 | 2014Paving Equipment | 2014Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0119 | 175 | 5 |
| 2014 | 2014Plate Compactors | 2014Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2014 | 2014Pressure Washers | 2014Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0006 | 15 | 1 |
| 2014 | 2014Pumps | 2014Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0095 | 120 | 4 |
| 2014 | 2014Rollers | 2014Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0083 | 120 | 4 |
| 2014 | 2014Rough Terrain Forklifts | 2014Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0079 | 120 | 4 |
| 2014 | 2014Rubber Tired Dozers | 2014Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0277 | 500 | 6 |
| 2014 | 2014Rubber Tired Loaders | 2014Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0107 | 250 | 6 |
| 2014 | 2014Scrapers | 2014Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0274 | 500 | 7 |
| 2014 | 2014Signal Boards | 2014Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2014 | 2014Sweepers/Scrubbers | 2014Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0089 | 120 | 3 |
| 2014 | 2014Tractors/Loaders/Backhoes | 2014Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0057 | 120 | 4 |
| 2014 | 2014Trenchers | 2014Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0109 | 120 | 4 |
| 2014 | 2014Welders | 2014Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0080 | 50 | 2 |
| 2015 | 2015Aerial Lifts | 2015Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0042 | 120 | 3 |
| 2015 | 2015Air Compressors | 2015Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0062 | 120 | 4 |
| 2015 | 2015Bore/Drill Rigs | 2015Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0061 | 250 | 6 |
| 2015 | 2015Cement and Mortar Mixers | 2015Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2015 | 2015Concrete/Industrial Saws | 2015Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0080 | 120 | 4 |
| 2015 | 2015Cranes | 2015Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0083 | 250 | 6 |
| 2015 | 2015Crawler Tractors | 2015Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0143 | 250 | 6 |
| 2015 | 2015Crushing/Proc. Equipment | 2015Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0105 | 120 | 4 |
| 2015 | 2015Dumpers/Tenders | 2015Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2015 | 2015Excavators | 2015Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0095 | 175 | 5 |
| 2015 | 2015Forklifts | 2015Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0031 | 120 | 4 |
| 2015 | 2015Generator Sets | 2015Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0082 | 120 | 4 |
| 2015 | 2015Graders | 2015Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0117 | 175 | 6 |
| 2015 | 2015Off-Highway Tractors | 2015Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0169 | 175 | 5 |
| 2015 | 2015Off-Highway Trucks | 2015Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0177 | 500 | 7 |
| 2015 | 2015Other Construction Equipment | 2015Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0072 | 175 | 5 |
| 2015 | 2015Other General Industrial Equipmen | 2015Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0089 | 120 | 4 |
| 2015 | 2015Other Material Handling Equipment | 2015Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0123 | 175 | 5 |
| 2015 | 2015Pavers | 2015Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0145 | 175 | 5 |
| 2015 | 2015Paving Equipment | 2015Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0113 | 175 | 5 |
| 2015 | 2015Plate Compactors | 2015Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2015 | 2015Pressure Washers | 2015Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0006 | 15 | 1 |
| 2015 | 2015Pumps | 2015Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0086 | 120 | 4 |
| 2015 | 2015Rollers | 2015Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0077 | 120 | 4 |
| 2015 | 2015Rough Terrain Forklifts | 2015Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0072 | 120 | 4 |
| 2015 | 2015Rubber Tired Dozers | 2015Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0265 | 500 | 6 |
| 2015 | 2015Rubber Tired Loaders | 2015Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0101 | 250 | 6 |
| 2015 | 2015Scrapers | 2015Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0260 | 500 | 7 |
| 2015 | 2015Signal Boards | 2015Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 2015Skid Steer Loaders | 2015Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0030 | 120 | 3 |
| 2015 | 2015Surfacing Equipment | 2015Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0121 | 500 | 6 |
| 2015 | 2015Sweepers/Scrubbers | 2015Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0079 | 120 | 3 |
| 2015 | 2015Tractors/Loaders/Backhoes | 2015Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0052 | 120 | 4 |
| 2015 | 2015Trenchers | 2015Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0103 | 120 | 4 |
| 2015 | 2015Welders | 2015Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0072 | 50 | 2 |
| 2016 | 2016Aerial Lifts | 2016Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0037 | 120 | 3 |
| 2016 | 2016Air Compressors | 2016Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0056 | 120 | 4 |
| 2016 | 2016Bore/Drill Rigs | 2016Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0057 | 250 | 6 |
| 2016 | 2016Cement and Mortar Mixers | 2016Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2016 | 2016Concrete/Industrial Saws | 2016Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0073 | 120 | 4 |
| 2016 | 2016Cranes | 2016Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0079 | 250 | 6 |
| 2016 | 2016Crawler Tractors | 2016Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0135 | 250 | 6 |
| 2016 | 2016Crushing/Proc. Equipment | 2016Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0095 | 120 | 4 |
| 2016 | 2016Dumpers/Tenders | 2016Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2016 | 2016Excavators | 2016Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0088 | 175 | 5 |
| 2016 | 2016Forklifts | 2016Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0028 | 120 | 4 |
| 2016 | 2016Generator Sets | 2016Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0073 | 120 | 4 |
| 2016 | 2016Graders | 2016Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0110 | 175 | 6 |
| 2016 | 2016Off-Highway Tractors | 2016Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0161 | 175 | 5 |
| 2016 | 2016Off-Highway Trucks | 2016Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0167 | 500 | 7 |
| 2016 | 2016Other Construction Equipment | 2016Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0066 | 175 | 5 |
| 2016 | 2016Other General Industrial Equipmen | 2016Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0081 | 120 | 4 |
| 2016 | 2016Other Material Handling Equipment | 2016Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0113 | 175 | 5 |
| 2016 | 2016Pavers | 2016Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0138 | 175 | 5 |
| 2016 | 2016Paving Equipment | 2016Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0107 | 175 | 5 |
| 2016 | 2016Plate Compactors | 2016Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2016 | 2016Pressure Washers | 2016Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0006 | 15 | 1 |
| 2016 | 2016Pumps | 2016Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0077 | 120 | 4 |
| 2016 | 2016Rollers | 2016Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0072 | 120 | 4 |
| 2016 | 2016Rough Terrain Forklifts | 2016Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0066 | 120 | 4 |
| 2016 | 2016Rubber Tired Dozers | 2016Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0252 | 500 | 6 |
| 2016 | 2016Rubber Tired Loaders | 2016Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0095 | 250 | 6 |
| 2016 | 2016Scrapers | 2016Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0247 | 500 | 7 |
| 2016 | 2016Signal Boards | 2016Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2016 | 2016Skid Steer Loaders | 2016Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0027 | 120 | 3 |
| 2016 | 2016Surfacing Equipment | 2016Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0114 | 500 | 6 |
| 2016 | 2016Sweepers/Scrubbers | 2016Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0070 | 120 | 3 |
| 2016 | 2016Tractors/Loaders/Backhoes | 2016Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0047 | 120 | 4 |
| 2016 | 2016Trenchers | 2016Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0097 | 120 | 4 |
| 2016 | 2016Welders | 2016Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0065 | 50 | 2 |
| 2017 | 2017Aerial Lifts | 2017Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0033 | 120 | 3 |
| 2017 | 2017Air Compressors | 2017Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0051 | 120 | 4 |
| 2017 | 2017Bore/Drill Rigs | 2017Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0052 | 250 | 6 |
| 2017 | 2017Cement and Mortar Mixers | 2017Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2017 | 2017Concrete/Industrial Saws | 2017Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0066 | 120 | 4 |
| 2017 | 2017Cranes | 2017Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0075 | 250 | 6 |
| 2017 | 2017Crawler Tractors | 2017Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0127 | 250 | 6 |
| 2017 | 2017Crushing/Proc. Equipment | 2017Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0086 | 120 | 4 |
| 2017 | 2017Dumpers/Tenders | 2017Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2017 | 2017Excavators | 2017Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0081 | 175 | 5 |
| 2017 | 2017Forklifts | 2017Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0026 | 120 | 4 |
| 2017 | 2017Generator Sets | 2017Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0065 | 120 | 4 |
| 2017 | 2017Graders | 2017Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0102 | 175 | 6 |
| 2017 | 2017Off-Highway Tractors | 2017Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0153 | 175 | 5 |
| 2017 | 2017Off-Highway Trucks | 2017Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0158 | 500 | 7 |
| 2017 | 2017Other Construction Equipment | 2017Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0060 | 175 | 5 |
| 2017 | 2017Other General Industrial Equipmen | 2017Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0073 | 120 | 4 |
| 2017 | 2017Other Material Handling Equipment | 2017Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0103 | 175 | 5 |
| 2017 | 2017Pavers | 2017Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0130 | 175 | 5 |
| 2017 | 2017Paving Equipment | 2017Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0101 | 175 | 5 |
| 2017 | 2017Plate Compactors | 2017Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2017 | 2017Pressure Washers | 2017Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2017 | 2017Pumps | 2017Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0069 | 120 | 4 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 2017Rollers | 2017Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0066 | 120 | 4 |
| 2017 | 2017Rough Terrain Forklifts | 2017Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0060 | 120 | 4 |
| 2017 | 2017Rubber Tired Dozers | 2017Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0240 | 500 | 6 |
| 2017 | 2017Rubber Tired Loaders | 2017Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0090 | 250 | 6 |
| 2017 | 2017Scrapers | 2017Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0234 | 500 | 7 |
| 2017 | 2017Signal Boards | 2017Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2017 | 2017Skid Steer Loaders | 2017Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0024 | 120 | 3 |
| 2017 | 2017Surfacing Equipment | 2017Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0107 | 500 | 6 |
| 2017 | 2017Sweepers/Scrubbers | 2017Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0063 | 120 | 3 |
| 2017 | 2017Tractors/Loaders/Backhoes | 2017Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0043 | 120 | 4 |
| 2017 | 2017Trenchers | 2017Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0092 | 120 | 4 |
| 2017 | 2017Welders | 2017Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0058 | 50 | 2 |
| 2018 | 2018Aerial Lifts | 2018Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0029 | 120 | 3 |
| 2018 | 2018Air Compressors | 2018Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0045 | 120 | 4 |
| 2018 | 2018Bore/Drill Rigs | 2018Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0049 | 250 | 6 |
| 2018 | 2018Cement and Mortar Mixers | 2018Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2018 | 2018Concrete/Industrial Saws | 2018Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0059 | 120 | 4 |
| 2018 | 2018Cranes | 2018Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0071 | 250 | 6 |
| 2018 | 2018Crawler Tractors | 2018Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0120 | 250 | 6 |
| 2018 | 2018Crushing/Proc. Equipment | 2018Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0077 | 120 | 4 |
| 2018 | 2018Dumpers/Tenders | 2018Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2018 | 2018Excavators | 2018Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0074 | 175 | 5 |
| 2018 | 2018Forklifts | 2018Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0024 | 120 | 4 |
| 2018 | 2018Generator Sets | 2018Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0058 | 120 | 4 |
| 2018 | 2018Graders | 2018Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0096 | 175 | 6 |
| 2018 | 2018Off-Highway Tractors | 2018Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0146 | 175 | 5 |
| 2018 | 2018Off-Highway Trucks | 2018Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0149 | 500 | 7 |
| 2018 | 2018Other Construction Equipment | 2018Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0055 | 175 | 5 |
| 2018 | 2018Other General Industrial Equipmen | 2018Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0066 | 120 | 4 |
| 2018 | 2018Other Material Handling Equipment | 2018Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0095 | 175 | 5 |
| 2018 | 2018Pavers | 2018Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0123 | 175 | 5 |
| 2018 | 2018Paving Equipment | 2018Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0096 | 175 | 5 |
| 2018 | 2018Plate Compactors | 2018Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2018 | 2018Pressure Washers | 2018Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2018 | 2018Pumps | 2018Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0061 | 120 | 4 |
| 2018 | 2018Rollers | 2018Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0061 | 120 | 4 |
| 2018 | 2018Rough Terrain Forklifts | 2018Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0054 | 120 | 4 |
| 2018 | 2018Rubber Tired Dozers | 2018Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0228 | 500 | 6 |
| 2018 | 2018Rubber Tired Loaders | 2018Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0085 | 250 | 6 |
| 2018 | 2018Scrapers | 2018Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0222 | 500 | 7 |
| 2018 | 2018Signal Boards | 2018Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2018 | 2018Skid Steer Loaders | 2018Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0022 | 120 | 3 |
| 2018 | 2018Surfacing Equipment | 2018Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0101 | 500 | 6 |
| 2018 | 2018Sweepers/Scrubbers | 2018Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0058 | 120 | 3 |
| 2018 | 2018Tractors/Loaders/Backhoes | 2018Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0039 | 120 | 4 |
| 2018 | 2018Trenchers | 2018Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0087 | 120 | 4 |
| 2018 | 2018Welders | 2018Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0051 | 50 | 2 |
| 2019 | 2019Aerial Lifts | 2019Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0026 | 120 | 3 |
| 2019 | 2019Air Compressors | 2019Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0041 | 120 | 4 |
| 2019 | 2019Bore/Drill Rigs | 2019Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0045 | 250 | 6 |
| 2019 | 2019Cement and Mortar Mixers | 2019Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2019 | 2019Concrete/Industrial Saws | 2019Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0052 | 120 | 4 |
| 2019 | 2019Cranes | 2019Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0067 | 250 | 6 |
| 2019 | 2019Crawler Tractors | 2019Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0114 | 250 | 6 |
| 2019 | 2019Crushing/Proc. Equipment | 2019Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0069 | 120 | 4 |
| 2019 | 2019Dumpers/Tenders | 2019Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2019 | 2019Excavators | 2019Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0068 | 175 | 5 |
| 2019 | 2019Forklifts | 2019Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0022 | 120 | 4 |
| 2019 | 2019Generator Sets | 2019Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0051 | 120 | 4 |
| 2019 | 2019Graders | 2019Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0089 | 175 | 6 |
| 2019 | 2019Off-Highway Tractors | 2019Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0138 | 175 | 5 |
| 2019 | 2019Off-Highway Trucks | 2019Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0142 | 500 | 7 |
| 2019 | 2019Other Construction Equipment | 2019Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0051 | 175 | 5 |
| 2019 | 2019Other General Industrial Equipmen | 2019Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0059 | 120 | 4 |

## Chiquita Canyon Landfill EIR

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 2019Other Material Handling Equipment | 2019Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0088 | 175 | 5 |
| 2019 | 2019Pavers | 2019Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0116 | 175 | 5 |
| 2019 | 2019Paving Equipment | 2019Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0090 | 175 | 5 |
| 2019 | 2019Plate Compactors | 2019Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2019 | 2019Pressure Washers | 2019Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2019 | 2019Pumps | 2019Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0054 | 120 | 4 |
| 2019 | 2019Rollers | 2019Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0057 | 120 | 4 |
| 2019 | 2019Rough Terrain Forklifts | 2019Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0049 | 120 | 4 |
| 2019 | 2019Rubber Tired Dozers | 2019Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0217 | 500 | 6 |
| 2019 | 2019Rubber Tired Loaders | 2019Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0081 | 250 | 6 |
| 2019 | 2019Scrapers | 2019Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0210 | 500 | 7 |
| 2019 | 2019Signal Boards | 2019Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2019 | 2019Skid Steer Loaders | 2019Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0021 | 120 | 3 |
| 2019 | 2019Surfacing Equipment | 2019Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0096 | 500 | 6 |
| 2019 | 2019Sweepers/Scrubbers | 2019Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0054 | 120 | 3 |
| 2019 | 2019Tractors/Loaders/Backhoes | 2019Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0036 | 120 | 4 |
| 2019 | 2019Trenchers | 2019Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0081 | 120 | 4 |
| 2019 | 2019Welders | 2019Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0044 | 50 | 2 |
| 2020 | 2020Aerial Lifts | 2020Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0023 | 120 | 3 |
| 2020 | 2020Air Compressors | 2020Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0037 | 120 | 4 |
| 2020 | 2020Bore/Drill Rigs | 2020Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0043 | 250 | 6 |
| 2020 | 2020Cement and Mortar Mixers | 2020Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2020 | 2020Concrete/Industrial Saws | 2020Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0047 | 120 | 4 |
| 2020 | 2020Cranes | 2020Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0064 | 250 | 6 |
| 2020 | 2020Crawler Tractors | 2020Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0107 | 250 | 6 |
| 2020 | 2020Crushing/Proc. Equipment | 2020Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0062 | 120 | 4 |
| 2020 | 2020Dumpers/Tenders | 2020Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2020 | 2020Excavators | 2020Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0063 | 175 | 5 |
| 2020 | 2020Forklifts | 2020Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0020 | 120 | 4 |
| 2020 | 2020Generator Sets | 2020Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0046 | 120 | 4 |
| 2020 | 2020Graders | 2020Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0083 | 175 | 6 |
| 2020 | 2020Off-Highway Tractors | 2020Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0131 | 175 | 5 |
| 2020 | 2020Off-Highway Trucks | 2020Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0134 | 500 | 7 |
| 2020 | 2020Other Construction Equipment | 2020Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0047 | 175 | 5 |
| 2020 | 2020Other General Industrial Equipmen | 2020Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0054 | 120 | 4 |
| 2020 | 2020Other Material Handling Equipment | 2020Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0082 | 175 | 5 |
| 2020 | 2020Pavers | 2020Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0110 | 175 | 5 |
| 2020 | 2020Paving Equipment | 2020Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0085 | 175 | 5 |
| 2020 | 2020Plate Compactors | 2020Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2020 | 2020Pressure Washers | 2020Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2020 | 2020Pumps | 2020Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0048 | 120 | 4 |
| 2020 | 2020Rollers | 2020Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0052 | 120 | 4 |
| 2020 | 2020Rough Terrain Forklifts | 2020Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0045 | 120 | 4 |
| 2020 | 2020Rubber Tired Dozers | 2020Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0207 | 500 | 6 |
| 2020 | 2020Rubber Tired Loaders | 2020Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0077 | 250 | 6 |
| 2020 | 2020Scrapers | 2020Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0200 | 500 | 7 |
| 2020 | 2020Signal Boards | 2020Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2020 | 2020Skid Steer Loaders | 2020Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0020 | 120 | 3 |
| 2020 | 2020Surfacing Equipment | 2020Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0091 | 500 | 6 |
| 2020 | 2020Sweepers/Scrubbers | 2020Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0050 | 120 | 3 |
| 2020 | 2020Tractors/Loaders/Backhoes | 2020Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0033 | 120 | 4 |
| 2020 | 2020Trenchers | 2020Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0077 | 120 | 4 |
| 2020 | 2020Welders | 2020Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0039 | 50 | 2 |
| 2021 | 2021Aerial Lifts | 2021Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0021 | 120 | 3 |
| 2021 | 2021Air Compressors | 2021Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0033 | 120 | 4 |
| 2021 | 2021Bore/Drill Rigs | 2021Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0041 | 250 | 6 |
| 2021 | 2021Cement and Mortar Mixers | 2021Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2021 | 2021Concrete/Industrial Saws | 2021Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0044 | 120 | 4 |
| 2021 | 2021Cranes | 2021Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0060 | 250 | 6 |
| 2021 | 2021Crawler Tractors | 2021Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0101 | 250 | 6 |
| 2021 | 2021Crushing/Proc. Equipment | 2021Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0058 | 120 | 4 |
| 2021 | 2021Dumpers/Tenders | 2021Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2021 | 2021Excavators | 2021Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0059 | 175 | 5 |
| 2021 | 2021Forklifts | 2021Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0019 | 120 | 4 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 2021Generator Sets | 2021Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0041 | 120 | 4 |
| 2021 | 2021Graders | 2021Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0077 | 175 | 6 |
| 2021 | 2021Off-Highway Tractors | 2021Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0124 | 175 | 5 |
| 2021 | 2021Off-Highway Trucks | 2021Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0128 | 500 | 7 |
| 2021 | 2021Other Construction Equipment | 2021Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0044 | 175 | 5 |
| 2021 | 2021Other General Industrial Equipmen | 2021Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0050 | 120 | 4 |
| 2021 | 2021Other Material Handling Equipment | 2021Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0075 | 175 | 5 |
| 2021 | 2021Pavers | 2021Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0104 | 175 | 5 |
| 2021 | 2021Paving Equipment | 2021Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0080 | 175 | 5 |
| 2021 | 2021Plate Compactors | 2021Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2021 | 2021Pressure Washers | 2021Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2021 | 2021Pumps | 2021Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0044 | 120 | 4 |
| 2021 | 2021Rollers | 2021Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0048 | 120 | 4 |
| 2021 | 2021Rough Terrain Forklifts | 2021Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0042 | 120 | 4 |
| 2021 | 2021Rubber Tired Dozers | 2021Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0197 | 500 | 6 |
| 2021 | 2021Rubber Tired Loaders | 2021Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0073 | 250 | 6 |
| 2021 | 2021Scrapers | 2021Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0190 | 500 | 7 |
| 2021 | 2021Signal Boards | 2021Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2021 | 2021Skid Steer Loaders | 2021Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0019 | 120 | 3 |
| 2021 | 2021Surfacing Equipment | 2021Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0087 | 500 | 6 |
| 2021 | 2021Sweepers/Scrubbers | 2021Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0046 | 120 | 3 |
| 2021 | 2021Tractors/Loaders/Backhoes | 2021Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0031 | 120 | 4 |
| 2021 | 2021Trenchers | 2021Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0072 | 120 | 4 |
| 2021 | 2021Welders | 2021Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0035 | 50 | 2 |
| 2022 | 2022Aerial Lifts | 2022Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0020 | 120 | 3 |
| 2022 | 2022Air Compressors | 2022Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0031 | 120 | 4 |
| 2022 | 2022Bore/Drill Rigs | 2022Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0040 | 250 | 6 |
| 2022 | 2022Cement and Mortar Mixers | 2022Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2022 | 2022Concrete/Industrial Saws | 2022Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0040 | 120 | 4 |
| 2022 | 2022Cranes | 2022Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0057 | 250 | 6 |
| 2022 | 2022Crawler Tractors | 2022Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0096 | 250 | 6 |
| 2022 | 2022Crushing/Proc. Equipment | 2022Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0054 | 120 | 4 |
| 2022 | 2022Dumpers/Tenders | 2022Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2022 | 2022Excavators | 2022Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0055 | 175 | 5 |
| 2022 | 2022Forklifts | 2022Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0018 | 120 | 4 |
| 2022 | 2022Generator Sets | 2022Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0038 | 120 | 4 |
| 2022 | 2022Graders | 2022Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0072 | 175 | 6 |
| 2022 | 2022Off-Highway Tractors | 2022Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0118 | 175 | 5 |
| 2022 | 2022Off-Highway Trucks | 2022Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0122 | 500 | 7 |
| 2022 | 2022Other Construction Equipment | 2022Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0041 | 175 | 5 |
| 2022 | 2022Other General Industrial Equipmen | 2022Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0047 | 120 | 4 |
| 2022 | 2022Other Material Handling Equipment | 2022Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0071 | 175 | 5 |
| 2022 | 2022Pavers | 2022Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0098 | 175 | 5 |
| 2022 | 2022Paving Equipment | 2022Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0075 | 175 | 5 |
| 2022 | 2022Plate Compactors | 2022Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2022 | 2022Pressure Washers | 2022Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2022 | 2022Pumps | 2022Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0040 | 120 | 4 |
| 2022 | 2022Rollers | 2022Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0044 | 120 | 4 |
| 2022 | 2022Rough Terrain Forklifts | 2022Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0039 | 120 | 4 |
| 2022 | 2022Rubber Tired Dozers | 2022Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0188 | 500 | 6 |
| 2022 | 2022Rubber Tired Loaders | 2022Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0069 | 250 | 6 |
| 2022 | 2022Scrapers | 2022Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0181 | 500 | 7 |
| 2022 | 2022Signal Boards | 2022Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2022 | 2022Skid Steer Loaders | 2022Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0018 | 120 | 3 |
| 2022 | 2022Surfacing Equipment | 2022Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0083 | 500 | 6 |
| 2022 | 2022Sweepers/Scrubbers | 2022Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0043 | 120 | 3 |
| 2022 | 2022Tractors/Loaders/Backhoes | 2022Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0029 | 120 | 4 |
| 2022 | 2022Trenchers | 2022Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0068 | 120 | 4 |
| 2022 | 2022Welders | 2022Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0032 | 50 | 2 |
| 2023 | 2023Aerial Lifts | 2023Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0018 | 120 | 3 |
| 2023 | 2023Air Compressors | 2023Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0029 | 120 | 4 |
| 2023 | 2023Bore/Drill Rigs | 2023Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2023 | 2023Cement and Mortar Mixers | 2023Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2023 | 2023Concrete/Industrial Saws | 2023Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0038 | 120 | 4 |

## Chiquita Canyon Landfill EIR

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Cranes | 2023Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0054 | 250 | 6 |
| 2023 | 2023Crawler Tractors | 2023Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0091 | 250 | 6 |
| 2023 | 2023Crushing/Proc. Equipment | 2023Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0051 | 120 | 4 |
| 2023 | 2023Dumpers/Tenders | 2023Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2023 | 2023Excavators | 2023Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0052 | 175 | 5 |
| 2023 | 2023Forklifts | 2023Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0017 | 120 | 4 |
| 2023 | 2023Generator Sets | 2023Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0035 | 120 | 4 |
| 2023 | 2023Graders | 2023Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0067 | 175 | 6 |
| 2023 | 2023Off-Highway Tractors | 2023Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0112 | 175 | 5 |
| 2023 | 2023Off-Highway Trucks | 2023Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0116 | 500 | 7 |
| 2023 | 2023Other Construction Equipment | 2023Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0039 | 175 | 5 |
| 2023 | 2023Other General Industrial Equipmen | 2023Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0044 | 120 | 4 |
| 2023 | 2023Other Material Handling Equipment | 2023Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0067 | 175 | 5 |
| 2023 | 2023Pavers | 2023Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0092 | 175 | 5 |
| 2023 | 2023Paving Equipment | 2023Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0071 | 175 | 5 |
| 2023 | 2023Plate Compactors | 2023Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2023 | 2023Pressure Washers | 2023Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2023 | 2023Pumps | 2023Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0038 | 120 | 4 |
| 2023 | 2023Rollers | 2023Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0041 | 120 | 4 |
| 2023 | 2023Rough Terrain Forklifts | 2023Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0037 | 120 | 4 |
| 2023 | 2023Rubber Tired Dozers | 2023Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0179 | 500 | 6 |
| 2023 | 2023Rubber Tired Loaders | 2023Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0065 | 250 | 6 |
| 2023 | 2023Scrapers | 2023Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0173 | 500 | 7 |
| 2023 | 2023Signal Boards | 2023Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2023 | 2023Skid Steer Loaders | 2023Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0017 | 120 | 3 |
| 2023 | 2023Surfacing Equipment | 2023Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0079 | 500 | 6 |
| 2023 | 2023Sweepers/Scrubbers | 2023Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0040 | 120 | 3 |
| 2023 | 2023Tractors/Loaders/Backhoes | 2023Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0027 | 120 | 4 |
| 2023 | 2023Trenchers | 2023Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0064 | 120 | 4 |
| 2024 | 2024Aerial Lifts | 2024Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0017 | 120 | 3 |
| 2024 | 2024Air Compressors | 2024Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0028 | 120 | 4 |
| 2024 | 2024Bore/Drill Rigs | 2024Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2024 | 2024Cement and Mortar Mixers | 2024Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2024 | 2024Concrete/Industrial Saws | 2024Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0035 | 120 | 4 |
| 2024 | 2024Cranes | 2024Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0051 | 250 | 6 |
| 2024 | 2024Crawler Tractors | 2024Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0087 | 250 | 6 |
| 2024 | 2024Crushing/Proc. Equipment | 2024Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0048 | 120 | 4 |
| 2024 | 2024Dumpers/Tenders | 2024Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2024 | 2024Excavators | 2024Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0049 | 175 | 5 |
| 2024 | 2024Forklifts | 2024Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0016 | 120 | 4 |
| 2024 | 2024Generator Sets | 2024Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2024 | 2024Graders | 2024Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0063 | 175 | 6 |
| 2024 | 2024Off-Highway Tractors | 2024Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0106 | 175 | 5 |
| 2024 | 2024Off-Highway Trucks | 2024Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0111 | 500 | 7 |
| 2024 | 2024Other Construction Equipment | 2024Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0037 | 175 | 5 |
| 2024 | 2024Other General Industrial Equipmen | 2024Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0041 | 120 | 4 |
| 2024 | 2024Other Material Handling Equipment | 2024Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0063 | 175 | 5 |
| 2024 | 2024Pavers | 2024Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0086 | 175 | 5 |
| 2024 | 2024Paving Equipment | 2024Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0066 | 175 | 5 |
| 2024 | 2024Plate Compactors | 2024Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2024 | 2024Pressure Washers | 2024Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2024 | 2024Pumps | 2024Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0035 | 120 | 4 |
| 2024 | 2024Rollers | 2024Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0038 | 120 | 4 |
| 2024 | 2024Rough Terrain Forklifts | 2024Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0035 | 120 | 4 |
| 2024 | 2024Rubber Tired Dozers | 2024Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0171 | 500 | 6 |
| 2024 | 2024Rubber Tired Loaders | 2024Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0062 | 250 | 6 |
| 2024 | 2024Scrapers | 2024Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0165 | 500 | 7 |
| 2024 | 2024Signal Boards | 2024Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2024 | 2024Skid Steer Loaders | 2024Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2024 | 2024Surfacing Equipment | 2024Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0075 | 500 | 6 |
| 2024 | 2024Sweepers/Scrubbers | 2024Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0038 | 120 | 3 |
| 2024 | 2024Tractors/Loaders/Backhoes | 2024Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0026 | 120 | 4 |
| 2024 | 2024Trenchers | 2024Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0060 | 120 | 4 |

## Chiquita Canyon Landfill EIR

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2024Welders | 2024Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0027 | 50 | 2 |
| 2025 | 2025Aerial Lifts | 2025Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2025 | 2025Air Compressors | 2025Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2025 | 2025Bore/Drill Rigs | 2025Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2025 | 2025Cement and Mortar Mixers | 2025Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2025 | 2025Concrete/Industrial Saws | 2025Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2025 | 2025Cranes | 2025Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2025 | 2025Crawler Tractors | 2025Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2025 | 2025Crushing/Proc. Equipment | 2025Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2025 | 2025Dumpers/Tenders | 2025Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2025 | 2025Excavators | 2025Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2025 | 2025Forklifts | 2025Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2025 | 2025Generator Sets | 2025Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2025 | 2025Graders | 2025Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2025 | 2025Off-Highway Tractors | 2025Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2025 | 2025Off-Highway Trucks | 2025Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2025 | 2025Other Construction Equipment | 2025Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2025 | 2025Other General Industrial Equipmen | 2025Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2025 | 2025Other Material Handling Equipment | 2025Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2025 | 2025Pavers | 2025Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2025 | 2025Paving Equipment | 2025Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2025 | 2025Plate Compactors | 2025Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2025 | 2025Pressure Washers | 2025Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2025 | 2025Pumps | 2025Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2025 | 2025Rollers | 2025Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2025 | 2025Rough Terrain Forklifts | 2025Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2025 | 2025Rubber Tired Dozers | 2025Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2025 | 2025Rubber Tired Loaders | 2025Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2025 | 2025Scrapers | 2025Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2025 | 2025Signal Boards | 2025Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2025 | 2025Skid Steer Loaders | 2025Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2025 | 2025Surfacing Equipment | 2025Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2025 | 2025Sweepers/Scrubbers | 2025Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2025 | 2025Tractors/Loaders/Backhoes | 2025Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2025 | 2025Trenchers | 2025Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2025 | 2025Welders | 2025Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2026 | 2026Aerial Lifts | 2026Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2026 | 2026Air Compressors | 2026Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2026 | 2026Bore/Drill Rigs | 2026Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2026 | 2026Cement and Mortar Mixers | 2026Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2026 | 2026Concrete/Industrial Saws | 2026Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2026 | 2026Cranes | 2026Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2026 | 2026Crawler Tractors | 2026Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2026 | 2026Crushing/Proc. Equipment | 2026Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2026 | 2026Dumpers/Tenders | 2026Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2026 | 2026Excavators | 2026Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2026 | 2026Forklifts | 2026Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2026 | 2026Generator Sets | 2026Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2026 | 2026Graders | 2026Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2026 | 2026Off-Highway Tractors | 2026Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2026 | 2026Off-Highway Trucks | 2026Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2026 | 2026Other Construction Equipment | 2026Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2026 | 2026Other General Industrial Equipmen | 2026Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2026 | 2026Other Material Handling Equipment | 2026Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2026 | 2026Pavers | 2026Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2026 | 2026Paving Equipment | 2026Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2026 | 2026Plate Compactors | 2026Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2026 | 2026Pressure Washers | 2026Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2026 | 2026Pumps | 2026Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2026 | 2026Rollers | 2026Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2026 | 2026Rough Terrain Forklifts | 2026Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2026 | 2026Rubber Tired Dozers | 2026Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2026 | 2026Rubber Tired Loaders | 2026Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2026 | 2026Scrapers | 2026Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Signal Boards | 2026Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2026 | 2026Skid Steer Loaders | 2026Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2026 | 2026Surfacing Equipment | 2026Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2026 | 2026Sweepers/Scrubbers | 2026Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2026 | 2026Tractors/Loaders/Backhoes | 2026Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2026 | 2026Trenchers | 2026Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2026 | 2026Welders | 2026Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2027 | 2027Aerial Lifts | 2027Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2027 | 2027Air Compressors | 2027Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2027 | 2027Bore/Drill Rigs | 2027Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2027 | 2027Cement and Mortar Mixers | 2027Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2027 | 2027Concrete/Industrial Saws | 2027Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2027 | 2027Cranes | 2027Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2027 | 2027Crawler Tractors | 2027Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2027 | 2027Crushing/Proc. Equipment | 2027Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2027 | 2027Dumpers/Tenders | 2027Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2027 | 2027Excavators | 2027Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2027 | 2027Forklifts | 2027Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2027 | 2027Generator Sets | 2027Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2027 | 2027Graders | 2027Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2027 | 2027Off-Highway Tractors | 2027Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2027 | 2027Off-Highway Trucks | 2027Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2027 | 2027Other Construction Equipment | 2027Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2027 | 2027Other General Industrial Equipmen | 2027Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2027 | 2027Other Material Handling Equipment | 2027Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2027 | 2027Pavers | 2027Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2027 | 2027Paving Equipment | 2027Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2027 | 2027Plate Compactors | 2027Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2027 | 2027Pressure Washers | 2027Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2027 | 2027Pumps | 2027Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2027 | 2027Rollers | 2027Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2027 | 2027Rough Terrain Forklifts | 2027Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2027 | 2027Rubber Tired Dozers | 2027Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2027 | 2027Rubber Tired Loaders | 2027Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2027 | 2027Scrapers | 2027Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2027 | 2027Signal Boards | 2027Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2027 | 2027Skid Steer Loaders | 2027Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2027 | 2027Surfacing Equipment | 2027Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2027 | 2027Sweepers/Scrubbers | 2027Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2027 | 2027Tractors/Loaders/Backhoes | 2027Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2027 | 2027Trenchers | 2027Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2027 | 2027Welders | 2027Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2028 | 2028Aerial Lifts | 2028Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2028 | 2028Air Compressors | 2028Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2028 | 2028Bore/Drill Rigs | 2028Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2028 | 2028Cement and Mortar Mixers | 2028Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2028 | 2028Concrete/Industrial Saws | 2028Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2028 | 2028Cranes | 2028Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2028 | 2028Crawler Tractors | 2028Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2028 | 2028Crushing/Proc. Equipment | 2028Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2028 | 2028Dumpers/Tenders | 2028Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2028 | 2028Excavators | 2028Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2028 | 2028Forklifts | 2028Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2028 | 2028Generator Sets | 2028Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2028 | 2028Graders | 2028Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2028 | 2028Off-Highway Tractors | 2028Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2028 | 2028Off-Highway Trucks | 2028Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2028 | 2028Other Construction Equipment | 2028Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2028 | 2028Other General Industrial Equipmen | 2028Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2028 | 2028Other Material Handling Equipment | 2028Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2028 | 2028Pavers | 2028Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2028 | 2028Paving Equipment | 2028Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2028 | 2028Plate Compactors | 2028Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2028 | 2028Pressure Washers | 2028Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | 2028Pumps | 2028Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2028 | 2028Rollers | 2028Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2028 | 2028Rough Terrain Forklifts | 2028Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2028 | 2028Rubber Tired Dozers | 2028Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2028 | 2028Rubber Tired Loaders | 2028Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2028 | 2028Scrapers | 2028Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2028 | 2028Signal Boards | 2028Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2028 | 2028Skid Steer Loaders | 2028Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2028 | 2028Surfacing Equipment | 2028Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2028 | 2028Sweepers/Scrubbers | 2028Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2028 | 2028Tractors/Loaders/Backhoes | 2028Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2028 | 2028Trenchers | 2028Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2028 | 2028Welders | 2028Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2029 | 2029Aerial Lifts | 2029Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2029 | 2029Air Compressors | 2029Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2029 | 2029Bore/Drill Rigs | 2029Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2029 | 2029Cement and Mortar Mixers | 2029Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2029 | 2029Concrete/Industrial Saws | 2029Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2029 | 2029Cranes | 2029Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2029 | 2029Crawler Tractors | 2029Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2029 | 2029Crushing/Proc. Equipment | 2029Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2029 | 2029Dumpers/Tenders | 2029Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2029 | 2029Excavators | 2029Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2029 | 2029Forklifts | 2029Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2029 | 2029Generator Sets | 2029Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2029 | 2029Graders | 2029Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2029 | 2029Off-Highway Tractors | 2029Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2029 | 2029Off-Highway Trucks | 2029Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2029 | 2029Other Construction Equipment | 2029Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2029 | 2029Other General Industrial Equipmen | 2029Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2029 | 2029Other Material Handling Equipment | 2029Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2029 | 2029Pavers | 2029Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2029 | 2029Paving Equipment | 2029Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2029 | 2029Plate Compactors | 2029Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2029 | 2029Pressure Washers | 2029Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2029 | 2029Pumps | 2029Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2029 | 2029Rollers | 2029Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2029 | 2029Rough Terrain Forklifts | 2029Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2029 | 2029Rubber Tired Dozers | 2029Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2029 | 2029Rubber Tired Loaders | 2029Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2029 | 2029Scrapers | 2029Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2029 | 2029Signal Boards | 2029Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2029 | 2029Skid Steer Loaders | 2029Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2029 | 2029Surfacing Equipment | 2029Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2029 | 2029Sweepers/Scrubbers | 2029Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2029 | 2029Tractors/Loaders/Backhoes | 2029Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2029 | 2029Trenchers | 2029Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2029 | 2029Welders | 2029Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2030 | 2030Aerial Lifts | 2030Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2030 | 2030Air Compressors | 2030Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2030 | 2030Bore/Drill Rigs | 2030Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2030 | 2030Cement and Mortar Mixers | 2030Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2030 | 2030Concrete/Industrial Saws | 2030Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2030 | 2030Cranes | 2030Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2030 | 2030Crawler Tractors | 2030Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2030 | 2030Crushing/Proc. Equipment | 2030Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2030 | 2030Dumpers/Tenders | 2030Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2030 | 2030Excavators | 2030Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2030 | 2030Forklifts | 2030Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2030 | 2030Generator Sets | 2030Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2030 | 2030Graders | 2030Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2030 | 2030Off-Highway Tractors | 2030Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2030 | 2030Off-Highway Trucks | 2030Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2030 | 2030Other Construction Equipment | 2030Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 2030Other General Industrial Equipmen | 2030Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2030 | 2030Other Material Handling Equipment | 2030Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2030 | 2030Pavers | 2030Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2030 | 2030Paving Equipment | 2030Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2030 | 2030Plate Compactors | 2030Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2030 | 2030Pressure Washers | 2030Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2030 | 2030Pumps | 2030Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2030 | 2030Rollers | 2030Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2030 | 2030Rough Terrain Forklifts | 2030Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2030 | 2030Rubber Tired Dozers | 2030Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2030 | 2030Rubber Tired Loaders | 2030Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2030 | 2030Scrapers | 2030Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2030 | 2030Signal Boards | 2030Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2030 | 2030Skid Steer Loaders | 2030Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2030 | 2030Surfacing Equipment | 2030Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2030 | 2030Sweepers/Scrubbers | 2030Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2030 | 2030Tractors/Loaders/Backhoes | 2030Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2030 | 2030Trenchers | 2030Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2030 | 2030Welders | 2030Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2031 | 2031Aerial Lifts | 2031Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2031 | 2031Air Compressors | 2031Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2031 | 2031Bore/Drill Rigs | 2031Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2031 | 2031Cement and Mortar Mixers | 2031Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2031 | 2031Concrete/Industrial Saws | 2031Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2031 | 2031Cranes | 2031Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2031 | 2031Crawler Tractors | 2031Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2031 | 2031Crushing/Proc. Equipment | 2031Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2031 | 2031Dumpers/Tenders | 2031Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2031 | 2031Excavators | 2031Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2031 | 2031Forklifts | 2031Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2031 | 2031Generator Sets | 2031Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2031 | 2031Graders | 2031Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2031 | 2031Off-Highway Tractors | 2031Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2031 | 2031Off-Highway Trucks | 2031Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2031 | 2031Other Construction Equipment | 2031Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2031 | 2031Other General Industrial Equipmen | 2031Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2031 | 2031Other Material Handling Equipment | 2031Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2031 | 2031Pavers | 2031Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2031 | 2031Paving Equipment | 2031Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2031 | 2031Plate Compactors | 2031Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2031 | 2031Pressure Washers | 2031Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2031 | 2031Pumps | 2031Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2031 | 2031Rollers | 2031Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2031 | 2031Rough Terrain Forklifts | 2031Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2031 | 2031Rubber Tired Dozers | 2031Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2031 | 2031Rubber Tired Loaders | 2031Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2031 | 2031Scrapers | 2031Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2031 | 2031Signal Boards | 2031Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2031 | 2031Skid Steer Loaders | 2031Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2031 | 2031Surfacing Equipment | 2031Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2031 | 2031Sweepers/Scrubbers | 2031Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2031 | 2031Tractors/Loaders/Backhoes | 2031Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2031 | 2031Trenchers | 2031Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2031 | 2031Welders | 2031Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2033 | 2033Aerial Lifts | 2033Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2033 | 2033Air Compressors | 2033Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2033 | 2033Bore/Drill Rigs | 2033Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2033 | 2033Cement and Mortar Mixers | 2033Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2033 | 2033Concrete/Industrial Saws | 2033Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2033 | 2033Cranes | 2033Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2033 | 2033Crawler Tractors | 2033Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2033 | 2033Crushing/Proc. Equipment | 2033Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2033 | 2033Dumpers/Tenders | 2033Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2033 | 2033Excavators | 2033Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Forklifts | 2033Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2033 | 2033Generator Sets | 2033Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2033 | 2033Graders | 2033Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2033 | 2033Off-Highway Tractors | 2033Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2033 | 2033Off-Highway Trucks | 2033Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2033 | 2033Other Construction Equipment | 2033Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2033 | 2033Other General Industrial Equipmen | 2033Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2033 | 2033Other Material Handling Equipment | 2033Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2033 | 2033Pavers | 2033Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2033 | 2033Paving Equipment | 2033Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2033 | 2033Plate Compactors | 2033Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2033 | 2033Pressure Washers | 2033Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2033 | 2033Pumps | 2033Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2033 | 2033Rollers | 2033Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2033 | 2033Rough Terrain Forklifts | 2033Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2033 | 2033Rubber Tired Dozers | 2033Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2033 | 2033Rubber Tired Loaders | 2033Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2033 | 2033Scrapers | 2033Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2033 | 2033Signal Boards | 2033Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2033 | 2033Skid Steer Loaders | 2033Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2033 | 2033Surfacing Equipment | 2033Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2033 | 2033Sweepers/Scrubbers | 2033Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2033 | 2033Tractors/Loaders/Backhoes | 2033Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2033 | 2033Trenchers | 2033Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2033 | 2033Welders | 2033Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2035 | 2035Aerial Lifts | 2035Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2035 | 2035Air Compressors | 2035Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2035 | 2035Bore/Drill Rigs | 2035Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2035 | 2035Cement and Mortar Mixers | 2035Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2035 | 2035Concrete/Industrial Saws | 2035Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2035 | 2035Cranes | 2035Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2035 | 2035Crawler Tractors | 2035Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2035 | 2035Crushing/Proc. Equipment | 2035Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2035 | 2035Dumpers/Tenders | 2035Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2035 | 2035Excavators | 2035Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2035 | 2035Forklifts | 2035Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2035 | 2035Generator Sets | 2035Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2035 | 2035Graders | 2035Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2035 | 2035Off-Highway Tractors | 2035Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2035 | 2035Off-Highway Trucks | 2035Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2035 | 2035Other Construction Equipment | 2035Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2035 | 2035Other General Industrial Equipmen | 2035Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2035 | 2035Other Material Handling Equipment | 2035Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2035 | 2035Pavers | 2035Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2035 | 2035Paving Equipment | 2035Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2035 | 2035Plate Compactors | 2035Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2035 | 2035Pressure Washers | 2035Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2035 | 2035Pumps | 2035Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2035 | 2035Rollers | 2035Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2035 | 2035Rough Terrain Forklifts | 2035Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2035 | 2035Rubber Tired Dozers | 2035Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2035 | 2035Rubber Tired Loaders | 2035Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2035 | 2035Scrapers | 2035Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2035 | 2035Signal Boards | 2035Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2035 | 2035Skid Steer Loaders | 2035Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2035 | 2035Surfacing Equipment | 2035Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2035 | 2035Sweepers/Scrubbers | 2035Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2035 | 2035Tractors/Loaders/Backhoes | 2035Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2035 | 2035Trenchers | 2035Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2035 | 2035Welders | 2035Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2037 | 2037Aerial Lifts | 2037Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2037 | 2037Air Compressors | 2037Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2037 | 2037Bore/Drill Rigs | 2037Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2037 | 2037Cement and Mortar Mixers | 2037Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 2037Concrete/Industrial Saws | 2037Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2037 | 2037Cranes | 2037Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2037 | 2037Crawler Tractors | 2037Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2037 | 2037Crushing/Proc. Equipment | 2037Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2037 | 2037Dumpers/Tenders | 2037Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2037 | 2037Excavators | 2037Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2037 | 2037Forklifts | 2037Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2037 | 2037Generator Sets | 2037Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2037 | 2037Graders | 2037Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2037 | 2037Off-Highway Tractors | 2037Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2037 | 2037Off-Highway Trucks | 2037Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2037 | 2037Other Construction Equipment | 2037Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2037 | 2037Other General Industrial Equipmen | 2037Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2037 | 2037Other Material Handling Equipment | 2037Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2037 | 2037Pavers | 2037Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2037 | 2037Paving Equipment | 2037Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2037 | 2037Plate Compactors | 2037Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2037 | 2037Pressure Washers | 2037Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2037 | 2037Pumps | 2037Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2037 | 2037Rollers | 2037Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2037 | 2037Rough Terrain Forklifts | 2037Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2037 | 2037Rubber Tired Dozers | 2037Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2037 | 2037Rubber Tired Loaders | 2037Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2037 | 2037Scrapers | 2037Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2037 | 2037Signal Boards | 2037Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2037 | 2037Skid Steer Loaders | 2037Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2037 | 2037Surfacing Equipment | 2037Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2037 | 2037Sweepers/Scrubbers | 2037Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2037 | 2037Tractors/Loaders/Backhoes | 2037Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2037 | 2037Trenchers | 2037Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2037 | 2037Welders | 2037Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2038 | 2038Aerial Lifts | 2038Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2038 | 2038Air Compressors | 2038Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2038 | 2038Bore/Drill Rigs | 2038Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2038 | 2038Cement and Mortar Mixers | 2038Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2038 | 2038Concrete/Industrial Saws | 2038Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2038 | 2038Cranes | 2038Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2038 | 2038Crawler Tractors | 2038Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2038 | 2038Crushing/Proc. Equipment | 2038Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2038 | 2038Dumpers/Tenders | 2038Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2038 | 2038Excavators | 2038Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2038 | 2038Forklifts | 2038Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2038 | 2038Generator Sets | 2038Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2038 | 2038Graders | 2038Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2038 | 2038Off-Highway Tractors | 2038Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2038 | 2038Off-Highway Trucks | 2038Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2038 | 2038Other Construction Equipment | 2038Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2038 | 2038Other General Industrial Equipmen | 2038Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2038 | 2038Other Material Handling Equipment | 2038Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2038 | 2038Pavers | 2038Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2038 | 2038Paving Equipment | 2038Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2038 | 2038Plate Compactors | 2038Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2038 | 2038Pressure Washers | 2038Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2038 | 2038Pumps | 2038Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2038 | 2038Rollers | 2038Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2038 | 2038Rough Terrain Forklifts | 2038Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2038 | 2038Rubber Tired Dozers | 2038Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2038 | 2038Rubber Tired Loaders | 2038Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2038 | 2038Scrapers | 2038Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2038 | 2038Signal Boards | 2038Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2038 | 2038Skid Steer Loaders | 2038Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2038 | 2038Surfacing Equipment | 2038Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2038 | 2038Sweepers/Scrubbers | 2038Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2038 | 2038Tractors/Loaders/Backhoes | 2038Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |

## Chiquita Canyon Landfill EIR

**Mitigated Off-road Construction Equipment Emission Factors (lb/hour): Operation**

| Year | Year+Equipment | Year+Equipment+Level | Equipment Name | Default Hp | Load | CO | NOx | VOC | SOx | PM10 | PM2.5 | CO2 | CH4 | Level | Range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Trenchers | 2038Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2038 | 2038Welders | 2038Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |
| 2041 | 2041Aerial Lifts | 2041Aerial Lifts120 | Aerial Lifts | 63 | 0.31 | 0.1593 | 0.1180 | 0.0052 | 0.0004 | 0.0003 | 0.0003 | 38.1 | 0.0016 | 120 | 3 |
| 2041 | 2041Air Compressors | 2041Air Compressors120 | Air Compressors | 78 | 0.48 | 0.3054 | 0.0215 | 0.0050 | 0.0006 | 0.0007 | 0.0007 | 47.0 | 0.0026 | 120 | 4 |
| 2041 | 2041Bore/Drill Rigs | 2041Bore/Drill Rigs250 | Bore/Drill Rigs | 206 | 0.5 | 0.4996 | 0.0590 | 0.0136 | 0.0021 | 0.0018 | 0.0018 | 188.1 | 0.0039 | 250 | 6 |
| 2041 | 2041Cement and Mortar Mixers | 2041Cement and Mortar Mixers15 | Cement and Mortar Mixers | 9 | 0.56 | 0.0456 | 0.0306 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.3 | 0.0007 | 15 | 1 |
| 2041 | 2041Concrete/Industrial Saws | 2041Concrete/Industrial Saws120 | Concrete/Industrial Saws | 81 | 0.73 | 0.4823 | 0.0339 | 0.0078 | 0.0009 | 0.0010 | 0.0010 | 74.1 | 0.0033 | 120 | 4 |
| 2041 | 2041Cranes | 2041Cranes250 | Cranes | 226 | 0.29 | 0.3179 | 0.0376 | 0.0087 | 0.0013 | 0.0012 | 0.0012 | 112.2 | 0.0049 | 250 | 6 |
| 2041 | 2041Crawler Tractors | 2041Crawler Tractors250 | Crawler Tractors | 208 | 0.43 | 0.4338 | 0.0513 | 0.0118 | 0.0019 | 0.0016 | 0.0016 | 166.1 | 0.0083 | 250 | 6 |
| 2041 | 2041Crushing/Proc. Equipment | 2041Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 85 | 0.78 | 0.5408 | 0.0380 | 0.0088 | 0.0010 | 0.0012 | 0.0012 | 83.1 | 0.0046 | 120 | 4 |
| 2041 | 2041Dumpers/Tenders | 2041Dumpers/Tenders25 | Dumpers/Tenders | 16 | 0.38 | 0.0550 | 0.0369 | 0.0016 | 0.0001 | 0.0001 | 0.0001 | 7.6 | 0.0008 | 25 | 1 |
| 2041 | 2041Excavators | 2041Excavators175 | Excavators | 163 | 0.38 | 0.5053 | 0.0355 | 0.0082 | 0.0013 | 0.0011 | 0.0011 | 112.2 | 0.0047 | 175 | 5 |
| 2041 | 2041Forklifts | 2041Forklifts120 | Forklifts | 89 | 0.2 | 0.1452 | 0.0102 | 0.0024 | 0.0004 | 0.0003 | 0.0003 | 31.2 | 0.0015 | 120 | 4 |
| 2041 | 2041Generator Sets | 2041Generator Sets120 | Generator Sets | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0031 | 120 | 4 |
| 2041 | 2041Graders | 2041Graders175 | Graders | 175 | 0.41 | 0.3480 | 0.0411 | 0.0095 | 0.0014 | 0.0013 | 0.0013 | 123.9 | 0.0059 | 175 | 6 |
| 2041 | 2041Off-Highway Tractors | 2041Off-Highway Tractors175 | Off-Highway Tractors | 123 | 0.44 | 0.4415 | 0.0310 | 0.0072 | 0.0015 | 0.0010 | 0.0010 | 130.4 | 0.0100 | 175 | 5 |
| 2041 | 2041Off-Highway Trucks | 2041Off-Highway Trucks500 | Off-Highway Trucks | 400 | 0.38 | 0.7372 | 0.0871 | 0.0201 | 0.0027 | 0.0027 | 0.0027 | 272.3 | 0.0107 | 500 | 7 |
| 2041 | 2041Other Construction Equipment | 2041Other Construction Equipment175 | Other Construction Equipment | 172 | 0.42 | 0.5893 | 0.0414 | 0.0096 | 0.0012 | 0.0013 | 0.0013 | 106.5 | 0.0035 | 175 | 5 |
| 2041 | 2041Other General Industrial Equipmen | 2041Other General Industrial Equipmen120 | Other General Industrial Equipmen | 88 | 0.34 | 0.2441 | 0.0172 | 0.0040 | 0.0007 | 0.0005 | 0.0005 | 62.0 | 0.0039 | 120 | 4 |
| 2041 | 2041Other Material Handling Equipment | 2041Other Material Handling Equipment175 | Other Material Handling Equipment | 167 | 0.4 | 0.5449 | 0.0383 | 0.0088 | 0.0014 | 0.0012 | 0.0012 | 122.1 | 0.0059 | 175 | 5 |
| 2041 | 2041Pavers | 2041Pavers175 | Pavers | 126 | 0.42 | 0.4317 | 0.0303 | 0.0070 | 0.0014 | 0.0009 | 0.0009 | 128.3 | 0.0081 | 175 | 5 |
| 2041 | 2041Paving Equipment | 2041Paving Equipment175 | Paving Equipment | 131 | 0.36 | 0.3847 | 0.0270 | 0.0062 | 0.0011 | 0.0008 | 0.0008 | 101.0 | 0.0062 | 175 | 5 |
| 2041 | 2041Plate Compactors | 2041Plate Compactors15 | Plate Compactors | 8 | 0.43 | 0.0311 | 0.0209 | 0.0009 | 0.0001 | 0.0001 | 0.0001 | 4.3 | 0.0005 | 15 | 1 |
| 2041 | 2041Pressure Washers | 2041Pressure Washers15 | Pressure Washers | 13 | 0.3 | 0.0353 | 0.0236 | 0.0010 | 0.0001 | 0.0001 | 0.0001 | 4.9 | 0.0005 | 15 | 1 |
| 2041 | 2041Pumps | 2041Pumps120 | Pumps | 84 | 0.74 | 0.5070 | 0.0356 | 0.0082 | 0.0009 | 0.0011 | 0.0011 | 77.9 | 0.0033 | 120 | 4 |
| 2041 | 2041Rollers | 2041Rollers120 | Rollers | 81 | 0.38 | 0.2511 | 0.0176 | 0.0041 | 0.0007 | 0.0005 | 0.0005 | 59.0 | 0.0035 | 120 | 4 |
| 2041 | 2041Rough Terrain Forklifts | 2041Rough Terrain Forklifts120 | Rough Terrain Forklifts | 100 | 0.4 | 0.3263 | 0.0229 | 0.0053 | 0.0007 | 0.0007 | 0.0007 | 62.4 | 0.0033 | 120 | 4 |
| 2041 | 2041Rubber Tired Dozers | 2041Rubber Tired Dozers500 | Rubber Tired Dozers | 255 | 0.4 | 0.4947 | 0.0585 | 0.0135 | 0.0026 | 0.0018 | 0.0018 | 264.9 | 0.0164 | 500 | 6 |
| 2041 | 2041Rubber Tired Loaders | 2041Rubber Tired Loaders250 | Rubber Tired Loaders | 200 | 0.36 | 0.3492 | 0.0413 | 0.0095 | 0.0017 | 0.0013 | 0.0013 | 149.0 | 0.0060 | 250 | 6 |
| 2041 | 2041Scrapers | 2041Scrapers500 | Scrapers | 362 | 0.48 | 0.8428 | 0.0996 | 0.0230 | 0.0032 | 0.0031 | 0.0031 | 321.4 | 0.0158 | 500 | 7 |
| 2041 | 2041Signal Boards | 2041Signal Boards15 | Signal Boards | 6 | 0.82 | 0.0445 | 0.0298 | 0.0013 | 0.0001 | 0.0001 | 0.0001 | 6.2 | 0.0006 | 15 | 1 |
| 2041 | 2041Skid Steer Loaders | 2041Skid Steer Loaders120 | Skid Steer Loaders | 65 | 0.37 | 0.1962 | 0.1453 | 0.0064 | 0.0005 | 0.0004 | 0.0004 | 42.8 | 0.0016 | 120 | 3 |
| 2041 | 2041Surfacing Equipment | 2041Surfacing Equipment500 | Surfacing Equipment | 254 | 0.3 | 0.3696 | 0.0437 | 0.0101 | 0.0022 | 0.0013 | 0.0013 | 221.2 | 0.0072 | 500 | 6 |
| 2041 | 2041Sweepers/Scrubbers | 2041Sweepers/Scrubbers120 | Sweepers/Scrubbers | 64 | 0.46 | 0.2401 | 0.1778 | 0.0078 | 0.0009 | 0.0005 | 0.0005 | 75.0 | 0.0036 | 120 | 3 |
| 2041 | 2041Tractors/Loaders/Backhoes | 2041Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 98 | 0.37 | 0.2958 | 0.0208 | 0.0048 | 0.0006 | 0.0006 | 0.0006 | 51.7 | 0.0025 | 120 | 4 |
| 2041 | 2041Trenchers | 2041Trenchers120 | Trenchers | 81 | 0.5 | 0.3304 | 0.0232 | 0.0054 | 0.0008 | 0.0007 | 0.0007 | 64.9 | 0.0056 | 120 | 4 |
| 2041 | 2041Welders | 2041Welders50 | Welders | 46 | 0.45 | 0.1871 | 0.1255 | 0.0055 | 0.0003 | 0.0004 | 0.0004 | 26.0 | 0.0025 | 50 | 2 |

Source: SCAQMD CEQA Handbook website: http://sfprod.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors
Emission factors only available up to 2025; therefore, it was conservatively assumed that the emission factors for years 2026 through 2035 were the same as 2025.
NOx/PM10/PM2.5/CO/VOC emission factors taken as the Tier 4f emission standards per the ARB's Diesel Off-road Equipment Regulation Table 3 (13 CCR 2449).
Default hp and load factor taken from CalEEMod User Guide Appendix D, Table 3.3 (September 2013).

**SCAQMD Offroad Emission Factors**

Source: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors.

| | | | | (lb/hr) | (lb/hr) | (lb/hr) | (lb/hr) | (lb/hr) | (lb/hr) | (lb/hr) |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
| 2014 | 2014Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0633 | 0.0001 | 0.0026 | 8.7 | 0.0009 |
| 2014 | 2014Aerial Lifts25 | Aerial Lifts | 25 | 0.0160 | 0.0494 | 0.0919 | 0.0001 | 0.0048 | 11.0 | 0.0014 |
| 2014 | 2014Aerial Lifts50 | Aerial Lifts | 50 | 0.0534 | 0.1694 | 0.1765 | 0.0003 | 0.0142 | 19.6 | 0.0048 |
| 2014 | 2014Aerial Lifts120 | Aerial Lifts | 120 | 0.0509 | 0.2400 | 0.3531 | 0.0004 | 0.0272 | 38.1 | 0.0046 |
| 2014 | 2014Aerial Lifts500 | Aerial Lifts | 500 | 0.1106 | 0.4444 | 1.3843 | 0.0021 | 0.0408 | 213 | 0.0100 |
| 2014 | 2014Aerial Lifts750 | Aerial Lifts | 750 | 0.2063 | 0.8033 | 2.5864 | 0.0039 | 0.0751 | 385 | 0.0186 |
| 2014 | 2014Aerial Lifts Composite | Aerial Lifts Composite | | 0.0483 | 0.1877 | 0.2867 | 0.0004 | 0.0184 | 34.7 | 0.0044 |
| 2014 | 2014Air Compressors15 | Air Compressors | 15 | 0.0114 | 0.0474 | 0.0697 | 0.0001 | 0.0044 | 7.2 | 0.0010 |
| 2014 | 2014Air Compressors25 | Air Compressors | 25 | 0.0247 | 0.0711 | 0.1275 | 0.0002 | 0.0075 | 14.4 | 0.0022 |
| 2014 | 2014Air Compressors50 | Air Compressors | 50 | 0.0831 | 0.2446 | 0.2134 | 0.0003 | 0.0201 | 22.3 | 0.0075 |
| 2014 | 2014Air Compressors120 | Air Compressors | 120 | 0.0758 | 0.3216 | 0.4682 | 0.0006 | 0.0416 | 47.0 | 0.0068 |
| 2014 | 2014Air Compressors175 | Air Compressors | 175 | 0.0984 | 0.5035 | 0.7837 | 0.0010 | 0.0431 | 88.5 | 0.0089 |
| 2014 | 2014Air Compressors250 | Air Compressors | 250 | 0.0948 | 0.2873 | 1.0299 | 0.0015 | 0.0316 | 131 | 0.0086 |
| 2014 | 2014Air Compressors500 | Air Compressors | 500 | 0.1543 | 0.5129 | 1.5945 | 0.0023 | 0.0519 | 232 | 0.0139 |
| 2014 | 2014Air Compressors750 | Air Compressors | 750 | 0.2412 | 0.7927 | 2.5509 | 0.0036 | 0.0819 | 358 | 0.0218 |
| 2014 | 2014Air Compressors1000 | Air Compressors | 1000 | 0.3865 | 1.2935 | 4.7637 | 0.0049 | 0.1363 | 486 | 0.0349 |
| 2014 | 2014Air Compressors Composite | Air Compressors Composite | | 0.0842 | 0.3313 | 0.5635 | 0.0007 | 0.0396 | 63.6 | 0.0076 |
| 2014 | 2014Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2014 | 2014Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1222 | 0.0002 | 0.0048 | 16.0 | 0.0017 |
| 2014 | 2014Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0255 | 0.2253 | 0.2394 | 0.0004 | 0.0095 | 31.0 | 0.0023 |
| 2014 | 2014Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0409 | 0.4684 | 0.4254 | 0.0009 | 0.0204 | 77.1 | 0.0037 |
| 2014 | 2014Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0671 | 0.7539 | 0.6527 | 0.0016 | 0.0246 | 141 | 0.0061 |
| 2014 | 2014Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0737 | 0.3426 | 0.6140 | 0.0021 | 0.0179 | 188 | 0.0066 |
| 2014 | 2014Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.1206 | 0.5512 | 0.9516 | 0.0031 | 0.0294 | 311 | 0.0109 |
| 2014 | 2014Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.2388 | 1.0890 | 1.8972 | 0.0062 | 0.0582 | 615 | 0.0215 |
| 2014 | 2014Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.3889 | 1.6591 | 5.4092 | 0.0093 | 0.1411 | 928 | 0.0351 |
| 2014 | 2014Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0729 | 0.5030 | 0.7136 | 0.0017 | 0.0248 | 165 | 0.0066 |
| 2014 | 2014Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0466 | 0.0001 | 0.0020 | 6.3 | 0.0007 |
| 2014 | 2014Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0259 | 0.0794 | 0.1481 | 0.0002 | 0.0078 | 17.6 | 0.0023 |
| 2014 | 2014Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0089 | 0.0420 | 0.0550 | 0.0001 | 0.0025 | 7.2 | 0.0008 |
| 2014 | 2014Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0048 | 16.5 | 0.0018 |
| 2014 | 2014Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0864 | 0.2825 | 0.2750 | 0.0004 | 0.0226 | 30.2 | 0.0078 |
| 2014 | 2014Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0978 | 0.4796 | 0.6733 | 0.0009 | 0.0538 | 74.1 | 0.0088 |
| 2014 | 2014Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.1457 | 0.8685 | 1.2772 | 0.0018 | 0.0645 | 160 | 0.0131 |
| 2014 | 2014Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0917 | 0.4031 | 0.5267 | 0.0007 | 0.0413 | 58.5 | 0.0083 |
| 2014 | 2014Cranes50 | Cranes | 50 | 0.0932 | 0.2808 | 0.2313 | 0.0003 | 0.0221 | 23.2 | 0.0084 |
| 2014 | 2014Cranes120 | Cranes | 120 | 0.0859 | 0.3587 | 0.5189 | 0.0006 | 0.0453 | 50.1 | 0.0078 |
| 2014 | 2014Cranes175 | Cranes | 175 | 0.0977 | 0.4806 | 0.7306 | 0.0009 | 0.0412 | 80.3 | 0.0088 |
| 2014 | 2014Cranes250 | Cranes | 250 | 0.0979 | 0.2817 | 0.9088 | 0.0013 | 0.0317 | 112 | 0.0088 |
| 2014 | 2014Cranes500 | Cranes | 500 | 0.1468 | 0.4948 | 1.2979 | 0.0018 | 0.0470 | 180 | 0.0132 |
| 2014 | 2014Cranes750 | Cranes | 750 | 0.2485 | 0.8312 | 2.2480 | 0.0030 | 0.0803 | 303 | 0.0224 |
| 2014 | 2014Cranes9999 | Cranes | 9999 | 0.9122 | 3.0993 | 9.8090 | 0.0098 | 0.3001 | 971 | 0.0823 |
| 2014 | 2014Cranes Composite | Cranes Composite | | 0.1276 | 0.4553 | 1.1066 | 0.0014 | 0.0466 | 129 | 0.0115 |
| 2014 | 2014Crawler Tractors50 | Crawler Tractors | 50 | 0.1094 | 0.3164 | 0.2544 | 0.0003 | 0.0251 | 24.9 | 0.0099 |
| 2014 | 2014Crawler Tractors120 | Crawler Tractors | 120 | 0.1217 | 0.4814 | 0.7280 | 0.0008 | 0.0627 | 65.8 | 0.0110 |
| 2014 | 2014Crawler Tractors175 | Crawler Tractors | 175 | 0.1594 | 0.7413 | 1.1857 | 0.0014 | 0.0663 | 121 | 0.0144 |
| 2014 | 2014Crawler Tractors250 | Crawler Tractors | 250 | 0.1672 | 0.4797 | 1.4702 | 0.0019 | 0.0562 | 166 | 0.0151 |
| 2014 | 2014Crawler Tractors500 | Crawler Tractors | 500 | 0.2420 | 0.8885 | 2.0637 | 0.0025 | 0.0798 | 259 | 0.0218 |
| 2014 | 2014Crawler Tractors750 | Crawler Tractors | 750 | 0.4355 | 1.5882 | 3.7861 | 0.0047 | 0.1446 | 465 | 0.0393 |
| 2014 | 2014Crawler Tractors1000 | Crawler Tractors | 1000 | 0.6595 | 2.5182 | 7.0047 | 0.0066 | 0.2228 | 658 | 0.0595 |
| 2014 | 2014Crawler Tractors Composite | Crawler Tractors Composite | | 0.1499 | 0.5767 | 1.0853 | 0.0013 | 0.0644 | 114 | 0.0135 |
| 2014 | 2014Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.1559 | 0.4812 | 0.4182 | 0.0006 | 0.0383 | 44.0 | 0.0141 |
| 2014 | 2014Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.1284 | 0.5703 | 0.8000 | 0.0010 | 0.0704 | 83.1 | 0.0116 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 2014Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1801 | 0.9583 | 1.4195 | 0.0019 | 0.0782 | 167 | 0.0163 |
| 2014 | 2014Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1744 | 0.5287 | 1.8241 | 0.0028 | 0.0562 | 245 | 0.0157 |
| 2014 | 2014Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.2480 | 0.8092 | 2.4341 | 0.0037 | 0.0801 | 374 | 0.0224 |
| 2014 | 2014Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3929 | 1.2625 | 3.9931 | 0.0059 | 0.1283 | 589 | 0.0354 |
| 2014 | 2014Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 1.0512 | 3.3574 | 12.4161 | 0.0131 | 0.3572 | 1,308 | 0.0948 |
| 2014 | 2014Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1597 | 0.6651 | 1.0867 | 0.0015 | 0.0677 | 132 | 0.0144 |
| 2014 | 2014Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0095 | 0.0317 | 0.0595 | 0.0001 | 0.0027 | 7.6 | 0.0009 |
| 2014 | 2014Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0095 | 0.0317 | 0.0595 | 0.0001 | 0.0027 | 7.6 | 0.0009 |
| 2014 | 2014Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2014 | 2014Excavators50 | Excavators | 50 | 0.0728 | 0.2757 | 0.2354 | 0.0003 | 0.0189 | 25.0 | 0.0066 |
| 2014 | 2014Excavators120 | Excavators | 120 | 0.0998 | 0.5137 | 0.6331 | 0.0009 | 0.0519 | 73.6 | 0.0090 |
| 2014 | 2014Excavators175 | Excavators | 175 | 0.1134 | 0.6660 | 0.8323 | 0.0013 | 0.0457 | 112 | 0.0102 |
| 2014 | 2014Excavators250 | Excavators | 250 | 0.1180 | 0.3480 | 1.0099 | 0.0018 | 0.0333 | 159 | 0.0106 |
| 2014 | 2014Excavators500 | Excavators | 500 | 0.1657 | 0.5102 | 1.3127 | 0.0023 | 0.0463 | 234 | 0.0149 |
| 2014 | 2014Excavators750 | Excavators | 750 | 0.2764 | 0.8452 | 2.2503 | 0.0039 | 0.0782 | 387 | 0.0249 |
| 2014 | 2014Excavators Composite | Excavators Composite | | 0.1143 | 0.5289 | 0.8299 | 0.0013 | 0.0428 | 120 | 0.0103 |
| 2014 | 2014Forklifts50 | Forklifts | 50 | 0.0381 | 0.1569 | 0.1376 | 0.0002 | 0.0106 | 14.7 | 0.0034 |
| 2014 | 2014Forklifts120 | Forklifts | 120 | 0.0390 | 0.2158 | 0.2571 | 0.0004 | 0.0206 | 31.2 | 0.0035 |
| 2014 | 2014Forklifts175 | Forklifts | 175 | 0.0524 | 0.3311 | 0.3883 | 0.0006 | 0.0214 | 56.1 | 0.0047 |
| 2014 | 2014Forklifts250 | Forklifts | 250 | 0.0542 | 0.1595 | 0.4606 | 0.0009 | 0.0149 | 77.1 | 0.0049 |
| 2014 | 2014Forklifts500 | Forklifts | 500 | 0.0752 | 0.2182 | 0.5845 | 0.0011 | 0.0206 | 111 | 0.0068 |
| 2014 | 2014Forklifts Composite | Forklifts Composite | | 0.0497 | 0.2215 | 0.3551 | 0.0006 | 0.0178 | 54.4 | 0.0045 |
| 2014 | 2014Generator Sets15 | Generator Sets | 15 | 0.0142 | 0.0670 | 0.0971 | 0.0002 | 0.0054 | 10.2 | 0.0013 |
| 2014 | 2014Generator Sets25 | Generator Sets | 25 | 0.0256 | 0.0868 | 0.1557 | 0.0002 | 0.0085 | 17.6 | 0.0023 |
| 2014 | 2014Generator Sets50 | Generator Sets | 50 | 0.0785 | 0.2545 | 0.2731 | 0.0004 | 0.0213 | 30.6 | 0.0071 |
| 2014 | 2014Generator Sets120 | Generator Sets | 120 | 0.1008 | 0.4857 | 0.7130 | 0.0009 | 0.0537 | 77.9 | 0.0091 |
| 2014 | 2014Generator Sets175 | Generator Sets | 175 | 0.1236 | 0.7367 | 1.1536 | 0.0016 | 0.0538 | 142 | 0.0112 |
| 2014 | 2014Generator Sets250 | Generator Sets | 250 | 0.1181 | 0.4248 | 1.5252 | 0.0024 | 0.0422 | 213 | 0.0107 |
| 2014 | 2014Generator Sets500 | Generator Sets | 500 | 0.1683 | 0.6904 | 2.1655 | 0.0033 | 0.0627 | 337 | 0.0152 |
| 2014 | 2014Generator Sets750 | Generator Sets | 750 | 0.2811 | 1.1145 | 3.6123 | 0.0055 | 0.1032 | 544 | 0.0254 |
| 2014 | 2014Generator Sets9999 | Generator Sets | 9999 | 0.7280 | 2.5702 | 9.5914 | 0.0105 | 0.2595 | 1,049 | 0.0657 |
| 2014 | 2014Generator Sets Composite | Generator Sets Composite | | 0.0702 | 0.2974 | 0.5083 | 0.0007 | 0.0296 | 61.0 | 0.0063 |
| 2014 | 2014Graders50 | Graders | 50 | 0.0985 | 0.3168 | 0.2668 | 0.0004 | 0.0239 | 27.5 | 0.0089 |
| 2014 | 2014Graders120 | Graders | 120 | 0.1166 | 0.5268 | 0.7270 | 0.0009 | 0.0614 | 75.0 | 0.0105 |
| 2014 | 2014Graders175 | Graders | 175 | 0.1386 | 0.7331 | 1.0511 | 0.0014 | 0.0577 | 124 | 0.0125 |
| 2014 | 2014Graders250 | Graders | 250 | 0.1407 | 0.4177 | 1.2844 | 0.0019 | 0.0445 | 172 | 0.0127 |
| 2014 | 2014Graders500 | Graders | 500 | 0.1759 | 0.5992 | 1.5242 | 0.0023 | 0.0550 | 229 | 0.0159 |
| 2014 | 2014Graders750 | Graders | 750 | 0.3746 | 1.2665 | 3.3218 | 0.0049 | 0.1182 | 486 | 0.0338 |
| 2014 | 2014Graders Composite | Graders Composite | | 0.1362 | 0.5987 | 1.0796 | 0.0015 | 0.0539 | 133 | 0.0123 |
| 2014 | 2014Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.2008 | 0.7118 | 1.1800 | 0.0011 | 0.1014 | 93.7 | 0.0181 |
| 2014 | 2014Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1960 | 0.8272 | 1.4624 | 0.0015 | 0.0820 | 130 | 0.0177 |
| 2014 | 2014Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1564 | 0.4499 | 1.3527 | 0.0015 | 0.0560 | 130 | 0.0141 |
| 2014 | 2014Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.6254 | 2.6908 | 5.4422 | 0.0057 | 0.2197 | 568 | 0.0564 |
| 2014 | 2014Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.9416 | 4.2058 | 9.6214 | 0.0082 | 0.3259 | 814 | 0.0850 |
| 2014 | 2014Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1986 | 0.7438 | 1.6111 | 0.0017 | 0.0767 | 151 | 0.0179 |
| 2014 | 2014Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.1355 | 0.7569 | 0.9614 | 0.0014 | 0.0539 | 125 | 0.0122 |
| 2014 | 2014Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.1326 | 0.3761 | 1.1048 | 0.0019 | 0.0368 | 167 | 0.0120 |
| 2014 | 2014Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.2065 | 0.6134 | 1.5945 | 0.0027 | 0.0567 | 272 | 0.0186 |
| 2014 | 2014Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.3371 | 0.9944 | 2.6748 | 0.0044 | 0.0937 | 442 | 0.0304 |
| 2014 | 2014Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.5191 | 1.5673 | 5.5862 | 0.0063 | 0.1665 | 625 | 0.0468 |
| 2014 | 2014Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.2034 | 0.6148 | 1.6679 | 0.0027 | 0.0579 | 260 | 0.0183 |
| 2014 | 2014Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2014 | 2014Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0160 | 0.0544 | 0.1010 | 0.0002 | 0.0039 | 13.2 | 0.0014 |
| 2014 | 2014Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0670 | 0.2573 | 0.2471 | 0.0004 | 0.0183 | 28.0 | 0.0060 |
| 2014 | 2014Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0915 | 0.5237 | 0.6571 | 0.0009 | 0.0503 | 80.9 | 0.0083 |
| 2014 | 2014Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0868 | 0.5867 | 0.7476 | 0.0012 | 0.0374 | 107 | 0.0078 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 2014Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1379 | 0.5080 | 1.3457 | 0.0025 | 0.0441 | 254 | 0.0124 |
| 2014 | 2014Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0820 | 0.3697 | 0.7168 | 0.0013 | 0.0296 | 123 | 0.0074 |
| 2014 | 2014Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2014 | 2014Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2014 | 2014Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0878 | 0.2626 | 0.2155 | 0.0003 | 0.0211 | 21.7 | 0.0079 |
| 2014 | 2014Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.1082 | 0.4435 | 0.6351 | 0.0007 | 0.0583 | 62.0 | 0.0098 |
| 2014 | 2014Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.1174 | 0.5703 | 0.8698 | 0.0011 | 0.0498 | 95.9 | 0.0106 |
| 2014 | 2014Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.1111 | 0.3089 | 1.0899 | 0.0015 | 0.0346 | 136 | 0.0100 |
| 2014 | 2014Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.2032 | 0.6064 | 1.8639 | 0.0026 | 0.0630 | 265 | 0.0183 |
| 2014 | 2014Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.3375 | 0.9995 | 3.1813 | 0.0044 | 0.1061 | 437 | 0.0305 |
| 2014 | 2014Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.4892 | 1.5297 | 5.6194 | 0.0056 | 0.1666 | 560 | 0.0441 |
| 2014 | 2014Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1448 | 0.4985 | 1.2360 | 0.0016 | 0.0527 | 152 | 0.0131 |
| 2014 | 2014Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.1219 | 0.3632 | 0.2997 | 0.0004 | 0.0293 | 30.3 | 0.0110 |
| 2014 | 2014Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.1051 | 0.4319 | 0.6201 | 0.0007 | 0.0568 | 60.7 | 0.0095 |
| 2014 | 2014Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.1481 | 0.7226 | 1.1054 | 0.0014 | 0.0631 | 122 | 0.0134 |
| 2014 | 2014Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.1174 | 0.3291 | 1.1643 | 0.0016 | 0.0368 | 145 | 0.0106 |
| 2014 | 2014Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1448 | 0.4365 | 1.3440 | 0.0019 | 0.0453 | 192 | 0.0131 |
| 2014 | 2014Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.6617 | 2.0216 | 7.4315 | 0.0073 | 0.2197 | 741 | 0.0597 |
| 2014 | 2014Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.1381 | 0.4814 | 1.2068 | 0.0015 | 0.0511 | 141 | 0.0125 |
| 2014 | 2014Pavers25 | Pavers | 25 | 0.0239 | 0.0788 | 0.1472 | 0.0002 | 0.0070 | 18.7 | 0.0022 |
| 2014 | 2014Pavers50 | Pavers | 50 | 0.1281 | 0.3506 | 0.2860 | 0.0004 | 0.0289 | 28.0 | 0.0116 |
| 2014 | 2014Pavers120 | Pavers | 120 | 0.1311 | 0.5011 | 0.7948 | 0.0008 | 0.0682 | 69.2 | 0.0118 |
| 2014 | 2014Pavers175 | Pavers | 175 | 0.1695 | 0.7742 | 1.3079 | 0.0014 | 0.0720 | 128 | 0.0153 |
| 2014 | 2014Pavers250 | Pavers | 250 | 0.1962 | 0.5822 | 1.8076 | 0.0022 | 0.0696 | 194 | 0.0177 |
| 2014 | 2014Pavers500 | Pavers | 500 | 0.2165 | 0.8647 | 1.9551 | 0.0023 | 0.0756 | 233 | 0.0195 |
| 2014 | 2014Pavers Composite | Pavers Composite | | 0.1429 | 0.5277 | 0.8112 | 0.0009 | 0.0564 | 77.9 | 0.0129 |
| 2014 | 2014Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0965 | 0.0002 | 0.0038 | 12.6 | 0.0014 |
| 2014 | 2014Paving Equipment50 | Paving Equipment | 50 | 0.1094 | 0.2974 | 0.2439 | 0.0003 | 0.0247 | 23.9 | 0.0099 |
| 2014 | 2014Paving Equipment120 | Paving Equipment | 120 | 0.1028 | 0.3923 | 0.6241 | 0.0006 | 0.0538 | 54.5 | 0.0093 |
| 2014 | 2014Paving Equipment175 | Paving Equipment | 175 | 0.1323 | 0.6049 | 1.0274 | 0.0011 | 0.0565 | 101 | 0.0119 |
| 2014 | 2014Paving Equipment250 | Paving Equipment | 250 | 0.1207 | 0.3595 | 1.1333 | 0.0014 | 0.0429 | 122 | 0.0109 |
| 2014 | 2014Paving Equipment Composite | Paving Equipment Composite | | 0.1082 | 0.4273 | 0.7312 | 0.0008 | 0.0502 | 68.9 | 0.0098 |
| 2014 | 2014Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2014 | 2014Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2014 | 2014Pressure Washers15 | Pressure Washers | 15 | 0.0068 | 0.0321 | 0.0465 | 0.0001 | 0.0026 | 4.9 | 0.0006 |
| 2014 | 2014Pressure Washers25 | Pressure Washers | 25 | 0.0104 | 0.0352 | 0.0631 | 0.0001 | 0.0035 | 7.1 | 0.0009 |
| 2014 | 2014Pressure Washers50 | Pressure Washers | 50 | 0.0281 | 0.1001 | 0.1230 | 0.0002 | 0.0085 | 14.3 | 0.0025 |
| 2014 | 2014Pressure Washers120 | Pressure Washers | 120 | 0.0274 | 0.1429 | 0.2101 | 0.0003 | 0.0143 | 24.1 | 0.0025 |
| 2014 | 2014Pressure Washers Composite | Pressure Washers Composite | | 0.0145 | 0.0603 | 0.0838 | 0.0001 | 0.0053 | 9.4 | 0.0013 |
| 2014 | 2014Pumps15 | Pumps | 15 | 0.0117 | 0.0488 | 0.0716 | 0.0001 | 0.0045 | 7.4 | 0.0011 |
| 2014 | 2014Pumps25 | Pumps | 25 | 0.0333 | 0.0959 | 0.1721 | 0.0002 | 0.0101 | 19.5 | 0.0030 |
| 2014 | 2014Pumps50 | Pumps | 50 | 0.0949 | 0.3004 | 0.3098 | 0.0004 | 0.0251 | 34.3 | 0.0086 |
| 2014 | 2014Pumps120 | Pumps | 120 | 0.1049 | 0.4934 | 0.7241 | 0.0009 | 0.0563 | 77.9 | 0.0095 |
| 2014 | 2014Pumps175 | Pumps | 175 | 0.1275 | 0.7382 | 1.1562 | 0.0016 | 0.0556 | 140 | 0.0115 |
| 2014 | 2014Pumps250 | Pumps | 250 | 0.1175 | 0.4096 | 1.4689 | 0.0023 | 0.0416 | 201 | 0.0106 |
| 2014 | 2014Pumps500 | Pumps | 500 | 0.1815 | 0.7226 | 2.2468 | 0.0034 | 0.0667 | 345 | 0.0164 |
| 2014 | 2014Pumps750 | Pumps | 750 | 0.3092 | 1.1947 | 3.8390 | 0.0057 | 0.1124 | 571 | 0.0279 |
| 2014 | 2014Pumps9999 | Pumps | 9999 | 0.9669 | 3.3910 | 12.5393 | 0.0136 | 0.3422 | 1,355 | 0.0872 |
| 2014 | 2014Pumps Composite | Pumps Composite | | 0.0683 | 0.2873 | 0.4427 | 0.0006 | 0.0295 | 49.6 | 0.0062 |
| 2014 | 2014Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2014 | 2014Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1019 | 0.0002 | 0.0040 | 13.3 | 0.0015 |
| 2014 | 2014Rollers50 | Rollers | 50 | 0.0947 | 0.2831 | 0.2492 | 0.0003 | 0.0226 | 26.0 | 0.0085 |
| 2014 | 2014Rollers120 | Rollers | 120 | 0.0921 | 0.4030 | 0.5906 | 0.0007 | 0.0494 | 59.0 | 0.0083 |
| 2014 | 2014Rollers175 | Rollers | 175 | 0.1178 | 0.6182 | 0.9537 | 0.0012 | 0.0510 | 108 | 0.0106 |
| 2014 | 2014Rollers250 | Rollers | 250 | 0.1180 | 0.3717 | 1.2002 | 0.0017 | 0.0407 | 153 | 0.0106 |
| 2014 | 2014Rollers500 | Rollers | 500 | 0.1555 | 0.5926 | 1.5340 | 0.0022 | 0.0537 | 219 | 0.0140 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 2014Rollers Composite | Rollers Composite | | 0.0912 | 0.4018 | 0.6164 | 0.0008 | 0.0419 | 67.1 | 0.0082 |
| 2014 | 2014Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.1055 | 0.3654 | 0.3185 | 0.0004 | 0.0271 | 33.9 | 0.0095 |
| 2014 | 2014Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0877 | 0.4292 | 0.5612 | 0.0007 | 0.0474 | 62.4 | 0.0079 |
| 2014 | 2014Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.1265 | 0.7246 | 0.9750 | 0.0014 | 0.0534 | 125 | 0.0114 |
| 2014 | 2014Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.1230 | 0.3717 | 1.1633 | 0.0019 | 0.0376 | 171 | 0.0111 |
| 2014 | 2014Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1745 | 0.5501 | 1.5313 | 0.0025 | 0.0529 | 257 | 0.0157 |
| 2014 | 2014Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0929 | 0.4608 | 0.6101 | 0.0008 | 0.0477 | 70.3 | 0.0084 |
| 2014 | 2014Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.2034 | 0.8392 | 1.4854 | 0.0015 | 0.0841 | 129 | 0.0183 |
| 2014 | 2014Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.2322 | 0.6560 | 1.9517 | 0.0021 | 0.0821 | 183 | 0.0209 |
| 2014 | 2014Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.3072 | 1.3307 | 2.5592 | 0.0026 | 0.1058 | 265 | 0.0277 |
| 2014 | 2014Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.4633 | 1.9954 | 3.9201 | 0.0040 | 0.1603 | 399 | 0.0418 |
| 2014 | 2014Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.7196 | 3.2150 | 7.1336 | 0.0060 | 0.2458 | 592 | 0.0649 |
| 2014 | 2014Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2854 | 1.1058 | 2.3867 | 0.0025 | 0.0993 | 239 | 0.0257 |
| 2014 | 2014Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0049 | 16.9 | 0.0018 |
| 2014 | 2014Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.1092 | 0.3535 | 0.3000 | 0.0004 | 0.0266 | 31.1 | 0.0099 |
| 2014 | 2014Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0902 | 0.4119 | 0.5654 | 0.0007 | 0.0477 | 58.9 | 0.0081 |
| 2014 | 2014Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.1168 | 0.6261 | 0.8915 | 0.0012 | 0.0489 | 106 | 0.0105 |
| 2014 | 2014Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.1186 | 0.3553 | 1.0966 | 0.0017 | 0.0375 | 149 | 0.0107 |
| 2014 | 2014Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1769 | 0.6085 | 1.5507 | 0.0023 | 0.0554 | 237 | 0.0160 |
| 2014 | 2014Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.3648 | 1.2450 | 3.2733 | 0.0049 | 0.1153 | 486 | 0.0329 |
| 2014 | 2014Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.4927 | 1.7350 | 5.6204 | 0.0060 | 0.1686 | 594 | 0.0445 |
| 2014 | 2014Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.1122 | 0.4683 | 0.8620 | 0.0012 | 0.0461 | 109 | 0.0101 |
| 2014 | 2014Scrapers120 | Scrapers | 120 | 0.1770 | 0.6882 | 1.0571 | 0.0011 | 0.0913 | 93.9 | 0.0160 |
| 2014 | 2014Scrapers175 | Scrapers | 175 | 0.1973 | 0.9065 | 1.4751 | 0.0017 | 0.0824 | 148 | 0.0178 |
| 2014 | 2014Scrapers250 | Scrapers | 250 | 0.2135 | 0.6146 | 1.8936 | 0.0024 | 0.0726 | 209 | 0.0193 |
| 2014 | 2014Scrapers500 | Scrapers | 500 | 0.3033 | 1.1355 | 2.6139 | 0.0032 | 0.1012 | 321 | 0.0274 |
| 2014 | 2014Scrapers750 | Scrapers | 750 | 0.5260 | 1.9562 | 4.6194 | 0.0056 | 0.1767 | 555 | 0.0475 |
| 2014 | 2014Scrapers Composite | Scrapers Composite | | 0.2648 | 0.9890 | 2.2371 | 0.0027 | 0.0928 | 262 | 0.0239 |
| 2014 | 2014Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2014 | 2014Signal Boards50 | Signal Boards | 50 | 0.1035 | 0.3331 | 0.3273 | 0.0005 | 0.0269 | 36.2 | 0.0093 |
| 2014 | 2014Signal Boards120 | Signal Boards | 120 | 0.1072 | 0.5163 | 0.7320 | 0.0009 | 0.0584 | 80.2 | 0.0097 |
| 2014 | 2014Signal Boards175 | Signal Boards | 175 | 0.1415 | 0.8317 | 1.2462 | 0.0017 | 0.0621 | 155 | 0.0128 |
| 2014 | 2014Signal Boards250 | Signal Boards | 250 | 0.1520 | 0.5213 | 1.8056 | 0.0029 | 0.0525 | 255 | 0.0137 |
| 2014 | 2014Signal Boards Composite | Signal Boards Composite | | 0.0181 | 0.0929 | 0.1332 | 0.0002 | 0.0071 | 16.7 | 0.0016 |
| 2014 | 2014Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0195 | 0.0610 | 0.1145 | 0.0002 | 0.0059 | 13.8 | 0.0018 |
| 2014 | 2014Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0443 | 0.2196 | 0.2161 | 0.0003 | 0.0134 | 25.5 | 0.0040 |
| 2014 | 2014Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0380 | 0.2727 | 0.3020 | 0.0005 | 0.0205 | 42.8 | 0.0034 |
| 2014 | 2014Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0406 | 0.2262 | 0.2369 | 0.0004 | 0.0152 | 30.3 | 0.0037 |
| 2014 | 2014Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0442 | 0.1367 | 0.1310 | 0.0002 | 0.0110 | 14.1 | 0.0040 |
| 2014 | 2014Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0904 | 0.4182 | 0.6174 | 0.0007 | 0.0477 | 63.8 | 0.0082 |
| 2014 | 2014Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0842 | 0.4716 | 0.7317 | 0.0010 | 0.0363 | 85.8 | 0.0076 |
| 2014 | 2014Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0955 | 0.3237 | 1.0228 | 0.0015 | 0.0341 | 135 | 0.0086 |
| 2014 | 2014Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1433 | 0.6069 | 1.5156 | 0.0022 | 0.0516 | 221 | 0.0129 |
| 2014 | 2014Surfacing Equipment750 | Surfacing Equipment | 750 | 0.2284 | 0.9503 | 2.4407 | 0.0035 | 0.0820 | 347 | 0.0206 |
| 2014 | 2014Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.1194 | 0.4930 | 1.1688 | 0.0017 | 0.0427 | 166 | 0.0108 |
| 2014 | 2014Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2014 | 2014Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0057 | 19.6 | 0.0021 |
| 2014 | 2014Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0911 | 0.3300 | 0.2939 | 0.0004 | 0.0241 | 31.6 | 0.0082 |
| 2014 | 2014Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0991 | 0.5098 | 0.6481 | 0.0009 | 0.0543 | 75.0 | 0.0089 |
| 2014 | 2014Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.1317 | 0.7996 | 1.0280 | 0.0016 | 0.0561 | 139 | 0.0119 |
| 2014 | 2014Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.1086 | 0.3327 | 1.0406 | 0.0018 | 0.0325 | 162 | 0.0098 |
| 2014 | 2014Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.1029 | 0.5086 | 0.6353 | 0.0009 | 0.0447 | 78.5 | 0.0093 |
| 2014 | 2014Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0193 | 0.0654 | 0.1228 | 0.0002 | 0.0052 | 15.9 | 0.0017 |
| 2014 | 2014Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0792 | 0.3103 | 0.2765 | 0.0004 | 0.0211 | 30.3 | 0.0071 |
| 2014 | 2014Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0634 | 0.3503 | 0.4252 | 0.0006 | 0.0337 | 51.7 | 0.0057 |
| 2014 | 2014Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0924 | 0.5857 | 0.7161 | 0.0011 | 0.0380 | 101 | 0.0083 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | 2014Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.1142 | 0.3608 | 1.0294 | 0.0019 | 0.0330 | 172 | 0.0103 |
| 2014 | 2014Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.2186 | 0.7245 | 1.8255 | 0.0039 | 0.0627 | 345 | 0.0197 |
| 2014 | 2014Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.3304 | 1.0864 | 2.8317 | 0.0058 | 0.0958 | 517 | 0.0298 |
| 2014 | 2014Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0728 | 0.3747 | 0.4977 | 0.0008 | 0.0341 | 66.8 | 0.0066 |
| 2014 | 2014Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2014 | 2014Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0095 | 32.9 | 0.0036 |
| 2014 | 2014Trenchers50 | Trenchers | 50 | 0.1477 | 0.3990 | 0.3332 | 0.0004 | 0.0333 | 32.9 | 0.0133 |
| 2014 | 2014Trenchers120 | Trenchers | 120 | 0.1212 | 0.4640 | 0.7489 | 0.0008 | 0.0629 | 64.9 | 0.0109 |
| 2014 | 2014Trenchers175 | Trenchers | 175 | 0.1864 | 0.8579 | 1.4773 | 0.0016 | 0.0798 | 144 | 0.0168 |
| 2014 | 2014Trenchers250 | Trenchers | 250 | 0.2226 | 0.6786 | 2.0933 | 0.0025 | 0.0813 | 223 | 0.0201 |
| 2014 | 2014Trenchers500 | Trenchers | 500 | 0.2835 | 1.2125 | 2.6464 | 0.0031 | 0.1024 | 311 | 0.0256 |
| 2014 | 2014Trenchers750 | Trenchers | 750 | 0.5377 | 2.2784 | 5.0912 | 0.0059 | 0.1947 | 587 | 0.0485 |
| 2014 | 2014Trenchers Composite | Trenchers Composite | | 0.1350 | 0.4606 | 0.6384 | 0.0007 | 0.0517 | 58.7 | 0.0122 |
| 2014 | 2014Welders15 | Welders | 15 | 0.0098 | 0.0408 | 0.0599 | 0.0001 | 0.0038 | 6.2 | 0.0009 |
| 2014 | 2014Welders25 | Welders | 25 | 0.0193 | 0.0555 | 0.0996 | 0.0001 | 0.0058 | 11.3 | 0.0017 |
| 2014 | 2014Welders50 | Welders | 50 | 0.0886 | 0.2652 | 0.2435 | 0.0003 | 0.0219 | 26.0 | 0.0080 |
| 2014 | 2014Welders120 | Welders | 120 | 0.0601 | 0.2632 | 0.3850 | 0.0005 | 0.0328 | 39.5 | 0.0054 |
| 2014 | 2014Welders175 | Welders | 175 | 0.1021 | 0.5438 | 0.8502 | 0.0011 | 0.0448 | 98.2 | 0.0092 |
| 2014 | 2014Welders250 | Welders | 250 | 0.0801 | 0.2545 | 0.9129 | 0.0013 | 0.0274 | 119 | 0.0072 |
| 2014 | 2014Welders500 | Welders | 500 | 0.1028 | 0.3644 | 1.1332 | 0.0016 | 0.0359 | 168 | 0.0093 |
| 2014 | 2014Welders Composite | Welders Composite | | 0.0589 | 0.2041 | 0.2436 | 0.0003 | 0.0206 | 25.6 | 0.0053 |
| 2015 | 2015Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2015 | 2015Aerial Lifts25 | Aerial Lifts | 25 | 0.0155 | 0.0486 | 0.0902 | 0.0001 | 0.0046 | 11.0 | 0.0014 |
| 2015 | 2015Aerial Lifts50 | Aerial Lifts | 50 | 0.0480 | 0.1641 | 0.1699 | 0.0003 | 0.0129 | 19.6 | 0.0043 |
| 2015 | 2015Aerial Lifts120 | Aerial Lifts | 120 | 0.0460 | 0.2377 | 0.3272 | 0.0004 | 0.0246 | 38.1 | 0.0042 |
| 2015 | 2015Aerial Lifts500 | Aerial Lifts | 500 | 0.1026 | 0.4261 | 1.2422 | 0.0021 | 0.0368 | 213 | 0.0093 |
| 2015 | 2015Aerial Lifts750 | Aerial Lifts | 750 | 0.1912 | 0.7702 | 2.3263 | 0.0039 | 0.0680 | 385 | 0.0173 |
| 2015 | 2015Aerial Lifts Composite | Aerial Lifts Composite | | 0.0439 | 0.1837 | 0.2670 | 0.0004 | 0.0167 | 34.7 | 0.0040 |
| 2015 | 2015Air Compressors15 | Air Compressors | 15 | 0.0108 | 0.0466 | 0.0664 | 0.0001 | 0.0040 | 7.2 | 0.0010 |
| 2015 | 2015Air Compressors25 | Air Compressors | 25 | 0.0229 | 0.0681 | 0.1247 | 0.0002 | 0.0069 | 14.4 | 0.0021 |
| 2015 | 2015Air Compressors50 | Air Compressors | 50 | 0.0747 | 0.2360 | 0.2056 | 0.0003 | 0.0183 | 22.3 | 0.0067 |
| 2015 | 2015Air Compressors120 | Air Compressors | 120 | 0.0691 | 0.3182 | 0.4334 | 0.0006 | 0.0375 | 47.0 | 0.0062 |
| 2015 | 2015Air Compressors175 | Air Compressors | 175 | 0.0903 | 0.5019 | 0.7101 | 0.0010 | 0.0388 | 88.5 | 0.0082 |
| 2015 | 2015Air Compressors250 | Air Compressors | 250 | 0.0892 | 0.2803 | 0.9294 | 0.0015 | 0.0286 | 131 | 0.0080 |
| 2015 | 2015Air Compressors500 | Air Compressors | 500 | 0.1463 | 0.4915 | 1.4297 | 0.0023 | 0.0470 | 232 | 0.0132 |
| 2015 | 2015Air Compressors750 | Air Compressors | 750 | 0.2285 | 0.7595 | 2.2932 | 0.0036 | 0.0743 | 358 | 0.0206 |
| 2015 | 2015Air Compressors1000 | Air Compressors | 1000 | 0.3551 | 1.1843 | 4.4558 | 0.0049 | 0.1239 | 486 | 0.0320 |
| 2015 | 2015Air Compressors Composite | Air Compressors Composite | | 0.0773 | 0.3257 | 0.5175 | 0.0007 | 0.0357 | 63.6 | 0.0070 |
| 2015 | 2015Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2015 | 2015Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1220 | 0.0002 | 0.0047 | 16.0 | 0.0017 |
| 2015 | 2015Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0234 | 0.2235 | 0.2240 | 0.0004 | 0.0075 | 31.0 | 0.0021 |
| 2015 | 2015Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0376 | 0.4676 | 0.3736 | 0.0009 | 0.0160 | 77.1 | 0.0034 |
| 2015 | 2015Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0618 | 0.7540 | 0.5364 | 0.0016 | 0.0198 | 141 | 0.0056 |
| 2015 | 2015Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0681 | 0.3425 | 0.4900 | 0.0021 | 0.0144 | 188 | 0.0061 |
| 2015 | 2015Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.1118 | 0.5511 | 0.7692 | 0.0031 | 0.0236 | 311 | 0.0101 |
| 2015 | 2015Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.2212 | 1.0888 | 1.5301 | 0.0062 | 0.0466 | 615 | 0.0200 |
| 2015 | 2015Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.3562 | 1.6528 | 4.9704 | 0.0093 | 0.1194 | 928 | 0.0321 |
| 2015 | 2015Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0673 | 0.5022 | 0.6138 | 0.0017 | 0.0200 | 165 | 0.0061 |
| 2015 | 2015Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0464 | 0.0001 | 0.0019 | 6.3 | 0.0007 |
| 2015 | 2015Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0251 | 0.0782 | 0.1456 | 0.0002 | 0.0074 | 17.6 | 0.0023 |
| 2015 | 2015Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0088 | 0.0419 | 0.0545 | 0.0001 | 0.0024 | 7.2 | 0.0008 |
| 2015 | 2015Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2015 | 2015Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0782 | 0.2745 | 0.2652 | 0.0004 | 0.0206 | 30.2 | 0.0071 |
| 2015 | 2015Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0892 | 0.4759 | 0.6249 | 0.0009 | 0.0486 | 74.1 | 0.0080 |
| 2015 | 2015Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.1340 | 0.8674 | 1.1593 | 0.0018 | 0.0585 | 160 | 0.0121 |
| 2015 | 2015Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0835 | 0.3982 | 0.4921 | 0.0007 | 0.0374 | 58.5 | 0.0075 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 2015Cranes50 | Cranes | 50 | 0.0853 | 0.2729 | 0.2235 | 0.0003 | 0.0202 | 23.2 | 0.0077 |
| 2015 | 2015Cranes120 | Cranes | 120 | 0.0800 | 0.3559 | 0.4822 | 0.0006 | 0.0415 | 50.1 | 0.0072 |
| 2015 | 2015Cranes175 | Cranes | 175 | 0.0919 | 0.4794 | 0.6684 | 0.0009 | 0.0378 | 80.3 | 0.0083 |
| 2015 | 2015Cranes250 | Cranes | 250 | 0.0925 | 0.2713 | 0.8284 | 0.0013 | 0.0286 | 112 | 0.0083 |
| 2015 | 2015Cranes500 | Cranes | 500 | 0.1393 | 0.4663 | 1.1812 | 0.0018 | 0.0426 | 180 | 0.0126 |
| 2015 | 2015Cranes750 | Cranes | 750 | 0.2358 | 0.7835 | 2.0490 | 0.0030 | 0.0729 | 303 | 0.0213 |
| 2015 | 2015Cranes9999 | Cranes | 9999 | 0.8682 | 2.8913 | 9.2743 | 0.0098 | 0.2775 | 971 | 0.0783 |
| 2015 | 2015Cranes Composite | Cranes Composite | | 0.1204 | 0.4395 | 1.0200 | 0.0014 | 0.0426 | 129 | 0.0109 |
| 2015 | 2015Crawler Tractors50 | Crawler Tractors | 50 | 0.1017 | 0.3087 | 0.2464 | 0.0003 | 0.0232 | 24.9 | 0.0092 |
| 2015 | 2015Crawler Tractors120 | Crawler Tractors | 120 | 0.1143 | 0.4774 | 0.6815 | 0.0008 | 0.0579 | 65.8 | 0.0103 |
| 2015 | 2015Crawler Tractors175 | Crawler Tractors | 175 | 0.1509 | 0.7384 | 1.0951 | 0.0014 | 0.0614 | 121 | 0.0136 |
| 2015 | 2015Crawler Tractors250 | Crawler Tractors | 250 | 0.1582 | 0.4614 | 1.3531 | 0.0019 | 0.0514 | 166 | 0.0143 |
| 2015 | 2015Crawler Tractors500 | Crawler Tractors | 500 | 0.2300 | 0.8352 | 1.8987 | 0.0025 | 0.0732 | 259 | 0.0207 |
| 2015 | 2015Crawler Tractors750 | Crawler Tractors | 750 | 0.4140 | 1.4936 | 3.4863 | 0.0047 | 0.1327 | 465 | 0.0374 |
| 2015 | 2015Crawler Tractors1000 | Crawler Tractors | 1000 | 0.6278 | 2.3640 | 6.6574 | 0.0066 | 0.2075 | 658 | 0.0566 |
| 2015 | 2015Crawler Tractors Composite | Crawler Tractors Composite | | 0.1415 | 0.5650 | 1.0059 | 0.0013 | 0.0594 | 114 | 0.0128 |
| 2015 | 2015Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.1392 | 0.4644 | 0.4024 | 0.0006 | 0.0346 | 44.0 | 0.0126 |
| 2015 | 2015Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.1167 | 0.5646 | 0.7374 | 0.0010 | 0.0629 | 83.1 | 0.0105 |
| 2015 | 2015Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1654 | 0.9559 | 1.2783 | 0.0019 | 0.0700 | 167 | 0.0149 |
| 2015 | 2015Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1646 | 0.5171 | 1.6355 | 0.0028 | 0.0506 | 245 | 0.0149 |
| 2015 | 2015Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.2358 | 0.7790 | 2.1722 | 0.0037 | 0.0722 | 374 | 0.0213 |
| 2015 | 2015Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3723 | 1.2184 | 3.5561 | 0.0059 | 0.1154 | 589 | 0.0336 |
| 2015 | 2015Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.9726 | 3.0901 | 11.5626 | 0.0131 | 0.3225 | 1,308 | 0.0878 |
| 2015 | 2015Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1465 | 0.6549 | 0.9893 | 0.0015 | 0.0607 | 132 | 0.0132 |
| 2015 | 2015Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0093 | 0.0315 | 0.0591 | 0.0001 | 0.0025 | 7.6 | 0.0008 |
| 2015 | 2015Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0093 | 0.0315 | 0.0591 | 0.0001 | 0.0025 | 7.6 | 0.0008 |
| 2015 | 2015Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2015 | 2015Excavators50 | Excavators | 50 | 0.0650 | 0.2683 | 0.2256 | 0.0003 | 0.0167 | 25.0 | 0.0059 |
| 2015 | 2015Excavators120 | Excavators | 120 | 0.0912 | 0.5102 | 0.5787 | 0.0009 | 0.0455 | 73.6 | 0.0082 |
| 2015 | 2015Excavators175 | Excavators | 175 | 0.1052 | 0.6653 | 0.7408 | 0.0013 | 0.0405 | 112 | 0.0095 |
| 2015 | 2015Excavators250 | Excavators | 250 | 0.1117 | 0.3431 | 0.8935 | 0.0018 | 0.0297 | 159 | 0.0101 |
| 2015 | 2015Excavators500 | Excavators | 500 | 0.1577 | 0.4964 | 1.1619 | 0.0023 | 0.0413 | 234 | 0.0142 |
| 2015 | 2015Excavators750 | Excavators | 750 | 0.2630 | 0.8225 | 1.9926 | 0.0039 | 0.0698 | 387 | 0.0237 |
| 2015 | 2015Excavators Composite | Excavators Composite | | 0.1064 | 0.5248 | 0.7416 | 0.0013 | 0.0379 | 120 | 0.0096 |
| 2015 | 2015Forklifts50 | Forklifts | 50 | 0.0324 | 0.1522 | 0.1324 | 0.0002 | 0.0092 | 14.7 | 0.0029 |
| 2015 | 2015Forklifts120 | Forklifts | 120 | 0.0345 | 0.2143 | 0.2326 | 0.0004 | 0.0174 | 31.2 | 0.0031 |
| 2015 | 2015Forklifts175 | Forklifts | 175 | 0.0486 | 0.3316 | 0.3442 | 0.0006 | 0.0189 | 56.1 | 0.0044 |
| 2015 | 2015Forklifts250 | Forklifts | 250 | 0.0518 | 0.1582 | 0.4040 | 0.0009 | 0.0133 | 77.1 | 0.0047 |
| 2015 | 2015Forklifts500 | Forklifts | 500 | 0.0724 | 0.2164 | 0.5170 | 0.0011 | 0.0185 | 111 | 0.0065 |
| 2015 | 2015Forklifts Composite | Forklifts Composite | | 0.0459 | 0.2200 | 0.3163 | 0.0006 | 0.0156 | 54.4 | 0.0041 |
| 2015 | 2015Generator Sets15 | Generator Sets | 15 | 0.0135 | 0.0658 | 0.0929 | 0.0002 | 0.0051 | 10.2 | 0.0012 |
| 2015 | 2015Generator Sets25 | Generator Sets | 25 | 0.0247 | 0.0831 | 0.1522 | 0.0002 | 0.0080 | 17.6 | 0.0022 |
| 2015 | 2015Generator Sets50 | Generator Sets | 50 | 0.0706 | 0.2465 | 0.2628 | 0.0004 | 0.0193 | 30.6 | 0.0064 |
| 2015 | 2015Generator Sets120 | Generator Sets | 120 | 0.0910 | 0.4811 | 0.6607 | 0.0009 | 0.0484 | 77.9 | 0.0082 |
| 2015 | 2015Generator Sets175 | Generator Sets | 175 | 0.1120 | 0.7350 | 1.0463 | 0.0016 | 0.0485 | 142 | 0.0101 |
| 2015 | 2015Generator Sets250 | Generator Sets | 250 | 0.1090 | 0.4148 | 1.3776 | 0.0024 | 0.0381 | 213 | 0.0098 |
| 2015 | 2015Generator Sets500 | Generator Sets | 500 | 0.1556 | 0.6639 | 1.9429 | 0.0033 | 0.0567 | 337 | 0.0140 |
| 2015 | 2015Generator Sets750 | Generator Sets | 750 | 0.2599 | 1.0718 | 3.2483 | 0.0055 | 0.0934 | 544 | 0.0234 |
| 2015 | 2015Generator Sets9999 | Generator Sets | 9999 | 0.6582 | 2.3655 | 8.9789 | 0.0105 | 0.2325 | 1,049 | 0.0594 |
| 2015 | 2015Generator Sets Composite | Generator Sets Composite | | 0.0640 | 0.2913 | 0.4717 | 0.0007 | 0.0268 | 61.0 | 0.0058 |
| 2015 | 2015Graders50 | Graders | 50 | 0.0897 | 0.3082 | 0.2569 | 0.0004 | 0.0217 | 27.5 | 0.0081 |
| 2015 | 2015Graders120 | Graders | 120 | 0.1081 | 0.5230 | 0.6726 | 0.0009 | 0.0555 | 75.0 | 0.0098 |
| 2015 | 2015Graders175 | Graders | 175 | 0.1299 | 0.7319 | 0.9534 | 0.0014 | 0.0526 | 124 | 0.0117 |
| 2015 | 2015Graders250 | Graders | 250 | 0.1326 | 0.4046 | 1.1596 | 0.0019 | 0.0400 | 172 | 0.0120 |
| 2015 | 2015Graders500 | Graders | 500 | 0.1666 | 0.5739 | 1.3760 | 0.0023 | 0.0496 | 229 | 0.0150 |
| 2015 | 2015Graders750 | Graders | 750 | 0.3549 | 1.2133 | 3.0011 | 0.0049 | 0.1066 | 486 | 0.0320 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 2015Graders Composite | Graders Composite | | 0.1277 | 0.5931 | 0.9795 | 0.0015 | 0.0489 | 133 | 0.0115 |
| 2015 | 2015Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1905 | 0.7051 | 1.1159 | 0.0011 | 0.0952 | 93.7 | 0.0172 |
| 2015 | 2015Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1870 | 0.8216 | 1.3703 | 0.0015 | 0.0771 | 130 | 0.0169 |
| 2015 | 2015Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1489 | 0.4320 | 1.2644 | 0.0015 | 0.0520 | 130 | 0.0134 |
| 2015 | 2015Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.5975 | 2.5165 | 5.0885 | 0.0057 | 0.2047 | 568 | 0.0539 |
| 2015 | 2015Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.9006 | 3.9378 | 9.2072 | 0.0082 | 0.3063 | 814 | 0.0813 |
| 2015 | 2015Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1893 | 0.7244 | 1.5085 | 0.0017 | 0.0717 | 151 | 0.0171 |
| 2015 | 2015Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.1259 | 0.7559 | 0.8596 | 0.0014 | 0.0477 | 125 | 0.0114 |
| 2015 | 2015Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.1252 | 0.3702 | 0.9818 | 0.0019 | 0.0328 | 167 | 0.0113 |
| 2015 | 2015Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1960 | 0.5949 | 1.4165 | 0.0027 | 0.0505 | 272 | 0.0177 |
| 2015 | 2015Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.3198 | 0.9645 | 2.3779 | 0.0044 | 0.0835 | 442 | 0.0289 |
| 2015 | 2015Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.4873 | 1.4801 | 5.2216 | 0.0063 | 0.1505 | 625 | 0.0440 |
| 2015 | 2015Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1924 | 0.5974 | 1.4932 | 0.0027 | 0.0516 | 260 | 0.0174 |
| 2015 | 2015Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2015 | 2015Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0039 | 13.2 | 0.0014 |
| 2015 | 2015Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0597 | 0.2506 | 0.2369 | 0.0004 | 0.0162 | 28.0 | 0.0054 |
| 2015 | 2015Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0827 | 0.5202 | 0.6012 | 0.0009 | 0.0441 | 80.9 | 0.0075 |
| 2015 | 2015Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0796 | 0.5864 | 0.6636 | 0.0012 | 0.0331 | 107 | 0.0072 |
| 2015 | 2015Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1310 | 0.4963 | 1.1867 | 0.0025 | 0.0394 | 254 | 0.0118 |
| 2015 | 2015Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0768 | 0.3645 | 0.6392 | 0.0013 | 0.0264 | 123 | 0.0069 |
| 2015 | 2015Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2015 | 2015Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2015 | 2015Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0786 | 0.2532 | 0.2077 | 0.0003 | 0.0191 | 21.7 | 0.0071 |
| 2015 | 2015Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0987 | 0.4387 | 0.5864 | 0.0007 | 0.0521 | 62.0 | 0.0089 |
| 2015 | 2015Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.1083 | 0.5684 | 0.7866 | 0.0011 | 0.0448 | 95.9 | 0.0098 |
| 2015 | 2015Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.1050 | 0.3015 | 0.9812 | 0.0015 | 0.0312 | 136 | 0.0095 |
| 2015 | 2015Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1931 | 0.5811 | 1.6702 | 0.0026 | 0.0569 | 265 | 0.0174 |
| 2015 | 2015Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.3208 | 0.9578 | 2.8569 | 0.0044 | 0.0959 | 437 | 0.0289 |
| 2015 | 2015Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.4546 | 1.4023 | 5.2482 | 0.0056 | 0.1513 | 560 | 0.0410 |
| 2015 | 2015Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1355 | 0.4843 | 1.1215 | 0.0016 | 0.0475 | 152 | 0.0122 |
| 2015 | 2015Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.1090 | 0.3501 | 0.2887 | 0.0004 | 0.0265 | 30.3 | 0.0098 |
| 2015 | 2015Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0959 | 0.4271 | 0.5727 | 0.0007 | 0.0509 | 60.7 | 0.0087 |
| 2015 | 2015Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.1365 | 0.7201 | 0.9997 | 0.0014 | 0.0567 | 122 | 0.0123 |
| 2015 | 2015Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.1109 | 0.3211 | 1.0483 | 0.0016 | 0.0332 | 145 | 0.0100 |
| 2015 | 2015Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1376 | 0.4182 | 1.2042 | 0.0019 | 0.0409 | 192 | 0.0124 |
| 2015 | 2015Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.6190 | 1.8527 | 6.9410 | 0.0073 | 0.1995 | 741 | 0.0558 |
| 2015 | 2015Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.1289 | 0.4698 | 1.0967 | 0.0015 | 0.0460 | 141 | 0.0116 |
| 2015 | 2015Pavers25 | Pavers | 25 | 0.0234 | 0.0780 | 0.1458 | 0.0002 | 0.0066 | 18.7 | 0.0021 |
| 2015 | 2015Pavers50 | Pavers | 50 | 0.1198 | 0.3421 | 0.2775 | 0.0004 | 0.0271 | 28.0 | 0.0108 |
| 2015 | 2015Pavers120 | Pavers | 120 | 0.1235 | 0.4969 | 0.7477 | 0.0008 | 0.0636 | 69.2 | 0.0111 |
| 2015 | 2015Pavers175 | Pavers | 175 | 0.1608 | 0.7707 | 1.2155 | 0.0014 | 0.0673 | 128 | 0.0145 |
| 2015 | 2015Pavers250 | Pavers | 250 | 0.1858 | 0.5585 | 1.6747 | 0.0022 | 0.0640 | 194 | 0.0168 |
| 2015 | 2015Pavers500 | Pavers | 500 | 0.2059 | 0.8113 | 1.8097 | 0.0023 | 0.0697 | 233 | 0.0186 |
| 2015 | 2015Pavers Composite | Pavers Composite | | 0.1347 | 0.5203 | 0.7607 | 0.0009 | 0.0526 | 77.9 | 0.0122 |
| 2015 | 2015Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0037 | 12.6 | 0.0014 |
| 2015 | 2015Paving Equipment50 | Paving Equipment | 50 | 0.1023 | 0.2901 | 0.2367 | 0.0003 | 0.0231 | 23.9 | 0.0092 |
| 2015 | 2015Paving Equipment120 | Paving Equipment | 120 | 0.0969 | 0.3891 | 0.5874 | 0.0006 | 0.0503 | 54.5 | 0.0087 |
| 2015 | 2015Paving Equipment175 | Paving Equipment | 175 | 0.1254 | 0.6025 | 0.9549 | 0.0011 | 0.0528 | 101 | 0.0113 |
| 2015 | 2015Paving Equipment250 | Paving Equipment | 250 | 0.1140 | 0.3441 | 1.0498 | 0.0014 | 0.0394 | 122 | 0.0103 |
| 2015 | 2015Paving Equipment Composite | Paving Equipment Composite | | 0.1023 | 0.4234 | 0.6842 | 0.0008 | 0.0469 | 68.9 | 0.0092 |
| 2015 | 2015Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2015 | 2015Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2015 | 2015Pressure Washers15 | Pressure Washers | 15 | 0.0065 | 0.0315 | 0.0445 | 0.0001 | 0.0024 | 4.9 | 0.0006 |
| 2015 | 2015Pressure Washers25 | Pressure Washers | 25 | 0.0100 | 0.0337 | 0.0617 | 0.0001 | 0.0033 | 7.1 | 0.0009 |
| 2015 | 2015Pressure Washers50 | Pressure Washers | 50 | 0.0251 | 0.0970 | 0.1183 | 0.0002 | 0.0077 | 14.3 | 0.0023 |
| 2015 | 2015Pressure Washers120 | Pressure Washers | 120 | 0.0245 | 0.1416 | 0.1947 | 0.0003 | 0.0128 | 24.1 | 0.0022 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 2015Pressure Washers Composite | Pressure Washers Composite | | 0.0133 | 0.0590 | 0.0799 | 0.0001 | 0.0049 | 9.4 | 0.0012 |
| 2015 | 2015Pumps15 | Pumps | 15 | 0.0111 | 0.0479 | 0.0683 | 0.0001 | 0.0041 | 7.4 | 0.0010 |
| 2015 | 2015Pumps25 | Pumps | 25 | 0.0309 | 0.0919 | 0.1682 | 0.0002 | 0.0094 | 19.5 | 0.0028 |
| 2015 | 2015Pumps50 | Pumps | 50 | 0.0855 | 0.2910 | 0.2982 | 0.0004 | 0.0228 | 34.3 | 0.0077 |
| 2015 | 2015Pumps120 | Pumps | 120 | 0.0949 | 0.4887 | 0.6710 | 0.0009 | 0.0508 | 77.9 | 0.0086 |
| 2015 | 2015Pumps175 | Pumps | 175 | 0.1158 | 0.7365 | 1.0489 | 0.0016 | 0.0502 | 140 | 0.0104 |
| 2015 | 2015Pumps250 | Pumps | 250 | 0.1088 | 0.3998 | 1.3270 | 0.0023 | 0.0376 | 201 | 0.0098 |
| 2015 | 2015Pumps500 | Pumps | 500 | 0.1686 | 0.6929 | 2.0163 | 0.0034 | 0.0603 | 345 | 0.0152 |
| 2015 | 2015Pumps750 | Pumps | 750 | 0.2872 | 1.1454 | 3.4529 | 0.0057 | 0.1018 | 571 | 0.0259 |
| 2015 | 2015Pumps9999 | Pumps | 9999 | 0.8773 | 3.1134 | 11.7387 | 0.0136 | 0.3072 | 1,355 | 0.0792 |
| 2015 | 2015Pumps Composite | Pumps Composite | | 0.0621 | 0.2825 | 0.4121 | 0.0006 | 0.0267 | 49.6 | 0.0056 |
| 2015 | 2015Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2015 | 2015Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1018 | 0.0002 | 0.0039 | 13.3 | 0.0015 |
| 2015 | 2015Rollers50 | Rollers | 50 | 0.0871 | 0.2754 | 0.2405 | 0.0003 | 0.0209 | 26.0 | 0.0079 |
| 2015 | 2015Rollers120 | Rollers | 120 | 0.0857 | 0.4000 | 0.5498 | 0.0007 | 0.0454 | 59.0 | 0.0077 |
| 2015 | 2015Rollers175 | Rollers | 175 | 0.1104 | 0.6166 | 0.8731 | 0.0012 | 0.0470 | 108 | 0.0100 |
| 2015 | 2015Rollers250 | Rollers | 250 | 0.1107 | 0.3575 | 1.0948 | 0.0017 | 0.0368 | 153 | 0.0100 |
| 2015 | 2015Rollers500 | Rollers | 500 | 0.1468 | 0.5595 | 1.3956 | 0.0022 | 0.0487 | 219 | 0.0132 |
| 2015 | 2015Rollers Composite | Rollers Composite | | 0.0851 | 0.3979 | 0.5706 | 0.0008 | 0.0386 | 67.1 | 0.0077 |
| 2015 | 2015Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0942 | 0.3551 | 0.3066 | 0.0004 | 0.0243 | 33.9 | 0.0085 |
| 2015 | 2015Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0801 | 0.4260 | 0.5164 | 0.0007 | 0.0420 | 62.4 | 0.0072 |
| 2015 | 2015Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.1171 | 0.7240 | 0.8746 | 0.0014 | 0.0477 | 125 | 0.0106 |
| 2015 | 2015Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.1168 | 0.3650 | 1.0385 | 0.0019 | 0.0338 | 171 | 0.0105 |
| 2015 | 2015Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1668 | 0.5337 | 1.3642 | 0.0025 | 0.0477 | 257 | 0.0150 |
| 2015 | 2015Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0850 | 0.4577 | 0.5588 | 0.0008 | 0.0423 | 70.3 | 0.0077 |
| 2015 | 2015Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1942 | 0.8333 | 1.3944 | 0.0015 | 0.0790 | 129 | 0.0175 |
| 2015 | 2015Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.2209 | 0.6304 | 1.8273 | 0.0021 | 0.0762 | 183 | 0.0199 |
| 2015 | 2015Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2932 | 1.2456 | 2.3951 | 0.0026 | 0.0985 | 265 | 0.0265 |
| 2015 | 2015Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.4423 | 1.8685 | 3.6712 | 0.0040 | 0.1494 | 399 | 0.0399 |
| 2015 | 2015Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.6883 | 3.0139 | 6.8297 | 0.0060 | 0.2311 | 592 | 0.0621 |
| 2015 | 2015Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2721 | 1.0420 | 2.2344 | 0.0025 | 0.0924 | 239 | 0.0246 |
| 2015 | 2015Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0049 | 16.9 | 0.0018 |
| 2015 | 2015Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0993 | 0.3438 | 0.2888 | 0.0004 | 0.0242 | 31.1 | 0.0090 |
| 2015 | 2015Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0835 | 0.4090 | 0.5226 | 0.0007 | 0.0431 | 58.9 | 0.0075 |
| 2015 | 2015Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.1094 | 0.6251 | 0.8077 | 0.0012 | 0.0445 | 106 | 0.0099 |
| 2015 | 2015Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.1118 | 0.3444 | 0.9890 | 0.0017 | 0.0337 | 149 | 0.0101 |
| 2015 | 2015Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1678 | 0.5818 | 1.3980 | 0.0023 | 0.0499 | 237 | 0.0151 |
| 2015 | 2015Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.3459 | 1.1905 | 2.9534 | 0.0049 | 0.1040 | 486 | 0.0312 |
| 2015 | 2015Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.4657 | 1.6412 | 5.2967 | 0.0060 | 0.1552 | 594 | 0.0420 |
| 2015 | 2015Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.1050 | 0.4615 | 0.7838 | 0.0012 | 0.0416 | 109 | 0.0095 |
| 2015 | 2015Scrapers120 | Scrapers | 120 | 0.1665 | 0.6826 | 0.9915 | 0.0011 | 0.0846 | 93.9 | 0.0150 |
| 2015 | 2015Scrapers175 | Scrapers | 175 | 0.1871 | 0.9030 | 1.3657 | 0.0017 | 0.0766 | 148 | 0.0169 |
| 2015 | 2015Scrapers250 | Scrapers | 250 | 0.2021 | 0.5906 | 1.7470 | 0.0024 | 0.0665 | 209 | 0.0182 |
| 2015 | 2015Scrapers500 | Scrapers | 500 | 0.2883 | 1.0688 | 2.4104 | 0.0032 | 0.0930 | 321 | 0.0260 |
| 2015 | 2015Scrapers750 | Scrapers | 750 | 0.5001 | 1.8419 | 4.2634 | 0.0056 | 0.1624 | 555 | 0.0451 |
| 2015 | 2015Scrapers Composite | Scrapers Composite | | 0.2513 | 0.9443 | 2.0647 | 0.0027 | 0.0854 | 262 | 0.0227 |
| 2015 | 2015Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2015 | 2015Signal Boards50 | Signal Boards | 50 | 0.0931 | 0.3227 | 0.3148 | 0.0005 | 0.0243 | 36.2 | 0.0084 |
| 2015 | 2015Signal Boards120 | Signal Boards | 120 | 0.0970 | 0.5116 | 0.6762 | 0.0009 | 0.0525 | 80.2 | 0.0088 |
| 2015 | 2015Signal Boards175 | Signal Boards | 175 | 0.1290 | 0.8300 | 1.1249 | 0.0017 | 0.0559 | 155 | 0.0116 |
| 2015 | 2015Signal Boards250 | Signal Boards | 250 | 0.1416 | 0.5098 | 1.6229 | 0.0029 | 0.0474 | 255 | 0.0128 |
| 2015 | 2015Signal Boards Composite | Signal Boards Composite | | 0.0171 | 0.0925 | 0.1250 | 0.0002 | 0.0066 | 16.7 | 0.0015 |
| 2015 | 2015Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0189 | 0.0601 | 0.1125 | 0.0002 | 0.0056 | 13.8 | 0.0017 |
| 2015 | 2015Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0378 | 0.2138 | 0.2052 | 0.0003 | 0.0113 | 25.5 | 0.0034 |
| 2015 | 2015Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0334 | 0.2710 | 0.2699 | 0.0005 | 0.0170 | 42.8 | 0.0030 |
| 2015 | 2015Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0352 | 0.2220 | 0.2198 | 0.0004 | 0.0128 | 30.3 | 0.0032 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 2015Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0408 | 0.1333 | 0.1263 | 0.0002 | 0.0101 | 14.1 | 0.0037 |
| 2015 | 2015Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0840 | 0.4151 | 0.5756 | 0.0007 | 0.0439 | 63.8 | 0.0076 |
| 2015 | 2015Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0787 | 0.4705 | 0.6706 | 0.0010 | 0.0335 | 85.8 | 0.0071 |
| 2015 | 2015Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0891 | 0.3116 | 0.9338 | 0.0015 | 0.0309 | 135 | 0.0080 |
| 2015 | 2015Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1342 | 0.5759 | 1.3809 | 0.0022 | 0.0468 | 221 | 0.0121 |
| 2015 | 2015Surfacing Equipment750 | Surfacing Equipment | 750 | 0.2139 | 0.9020 | 2.2264 | 0.0035 | 0.0745 | 347 | 0.0193 |
| 2015 | 2015Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.1116 | 0.4705 | 1.0675 | 0.0017 | 0.0389 | 166 | 0.0101 |
| 2015 | 2015Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2015 | 2015Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2015 | 2015Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0782 | 0.3186 | 0.2828 | 0.0004 | 0.0211 | 31.6 | 0.0071 |
| 2015 | 2015Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0880 | 0.5056 | 0.5893 | 0.0009 | 0.0466 | 75.0 | 0.0079 |
| 2015 | 2015Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.1193 | 0.7999 | 0.9051 | 0.0016 | 0.0488 | 139 | 0.0108 |
| 2015 | 2015Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.1029 | 0.3286 | 0.9094 | 0.0018 | 0.0289 | 162 | 0.0093 |
| 2015 | 2015Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0913 | 0.5034 | 0.5746 | 0.0009 | 0.0387 | 78.5 | 0.0082 |
| 2015 | 2015Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0192 | 0.0653 | 0.1221 | 0.0002 | 0.0049 | 15.9 | 0.0017 |
| 2015 | 2015Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0702 | 0.3020 | 0.2646 | 0.0004 | 0.0186 | 30.3 | 0.0063 |
| 2015 | 2015Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0577 | 0.3480 | 0.3870 | 0.0006 | 0.0293 | 51.7 | 0.0052 |
| 2015 | 2015Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0854 | 0.5853 | 0.6331 | 0.0011 | 0.0335 | 101 | 0.0077 |
| 2015 | 2015Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.1082 | 0.3566 | 0.9047 | 0.0019 | 0.0294 | 172 | 0.0098 |
| 2015 | 2015Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.2085 | 0.7089 | 1.6070 | 0.0039 | 0.0559 | 345 | 0.0188 |
| 2015 | 2015Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.3148 | 1.0631 | 2.4922 | 0.0058 | 0.0854 | 517 | 0.0284 |
| 2015 | 2015Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0666 | 0.3716 | 0.4501 | 0.0008 | 0.0298 | 66.8 | 0.0060 |
| 2015 | 2015Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2015 | 2015Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2015 | 2015Trenchers50 | Trenchers | 50 | 0.1390 | 0.3900 | 0.3235 | 0.0004 | 0.0313 | 32.9 | 0.0125 |
| 2015 | 2015Trenchers120 | Trenchers | 120 | 0.1144 | 0.4600 | 0.7060 | 0.0008 | 0.0590 | 64.9 | 0.0103 |
| 2015 | 2015Trenchers175 | Trenchers | 175 | 0.1770 | 0.8534 | 1.3767 | 0.0016 | 0.0748 | 144 | 0.0160 |
| 2015 | 2015Trenchers250 | Trenchers | 250 | 0.2105 | 0.6510 | 1.9456 | 0.0025 | 0.0750 | 223 | 0.0190 |
| 2015 | 2015Trenchers500 | Trenchers | 500 | 0.2694 | 1.1349 | 2.4560 | 0.0031 | 0.0947 | 311 | 0.0243 |
| 2015 | 2015Trenchers750 | Trenchers | 750 | 0.5107 | 2.1334 | 4.7300 | 0.0059 | 0.1802 | 587 | 0.0461 |
| 2015 | 2015Trenchers Composite | Trenchers Composite | | 0.1274 | 0.4541 | 0.6043 | 0.0007 | 0.0485 | 58.7 | 0.0115 |
| 2015 | 2015Welders15 | Welders | 15 | 0.0093 | 0.0400 | 0.0571 | 0.0001 | 0.0034 | 6.2 | 0.0008 |
| 2015 | 2015Welders25 | Welders | 25 | 0.0179 | 0.0532 | 0.0974 | 0.0001 | 0.0054 | 11.3 | 0.0016 |
| 2015 | 2015Welders50 | Welders | 50 | 0.0801 | 0.2564 | 0.2346 | 0.0003 | 0.0200 | 26.0 | 0.0072 |
| 2015 | 2015Welders120 | Welders | 120 | 0.0547 | 0.2606 | 0.3567 | 0.0005 | 0.0296 | 39.5 | 0.0049 |
| 2015 | 2015Welders175 | Welders | 175 | 0.0936 | 0.5424 | 0.7713 | 0.0011 | 0.0405 | 98.2 | 0.0084 |
| 2015 | 2015Welders250 | Welders | 250 | 0.0749 | 0.2483 | 0.8249 | 0.0013 | 0.0248 | 119 | 0.0068 |
| 2015 | 2015Welders500 | Welders | 500 | 0.0968 | 0.3491 | 1.0171 | 0.0016 | 0.0325 | 168 | 0.0087 |
| 2015 | 2015Welders Composite | Welders Composite | | 0.0534 | 0.1994 | 0.2301 | 0.0003 | 0.0187 | 25.6 | 0.0048 |
| 2016 | 2016Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2016 | 2016Aerial Lifts25 | Aerial Lifts | 25 | 0.0150 | 0.0479 | 0.0887 | 0.0001 | 0.0043 | 11.0 | 0.0014 |
| 2016 | 2016Aerial Lifts50 | Aerial Lifts | 50 | 0.0430 | 0.1592 | 0.1637 | 0.0003 | 0.0116 | 19.6 | 0.0039 |
| 2016 | 2016Aerial Lifts120 | Aerial Lifts | 120 | 0.0413 | 0.2355 | 0.3021 | 0.0004 | 0.0219 | 38.1 | 0.0037 |
| 2016 | 2016Aerial Lifts500 | Aerial Lifts | 500 | 0.0951 | 0.4103 | 1.1062 | 0.0021 | 0.0331 | 213 | 0.0086 |
| 2016 | 2016Aerial Lifts750 | Aerial Lifts | 750 | 0.1771 | 0.7417 | 2.0748 | 0.0039 | 0.0611 | 385 | 0.0160 |
| 2016 | 2016Aerial Lifts Composite | Aerial Lifts Composite | | 0.0397 | 0.1800 | 0.2482 | 0.0004 | 0.0150 | 34.7 | 0.0036 |
| 2016 | 2016Air Compressors15 | Air Compressors | 15 | 0.0104 | 0.0461 | 0.0642 | 0.0001 | 0.0037 | 7.2 | 0.0009 |
| 2016 | 2016Air Compressors25 | Air Compressors | 25 | 0.0219 | 0.0665 | 0.1224 | 0.0002 | 0.0066 | 14.4 | 0.0020 |
| 2016 | 2016Air Compressors50 | Air Compressors | 50 | 0.0667 | 0.2281 | 0.1982 | 0.0003 | 0.0165 | 22.3 | 0.0060 |
| 2016 | 2016Air Compressors120 | Air Compressors | 120 | 0.0624 | 0.3150 | 0.3994 | 0.0006 | 0.0333 | 47.0 | 0.0056 |
| 2016 | 2016Air Compressors175 | Air Compressors | 175 | 0.0824 | 0.5006 | 0.6378 | 0.0010 | 0.0346 | 88.5 | 0.0074 |
| 2016 | 2016Air Compressors250 | Air Compressors | 250 | 0.0838 | 0.2741 | 0.8308 | 0.0015 | 0.0257 | 131 | 0.0076 |
| 2016 | 2016Air Compressors500 | Air Compressors | 500 | 0.1387 | 0.4734 | 1.2719 | 0.0023 | 0.0422 | 232 | 0.0125 |
| 2016 | 2016Air Compressors750 | Air Compressors | 750 | 0.2164 | 0.7315 | 2.0431 | 0.0036 | 0.0668 | 358 | 0.0195 |
| 2016 | 2016Air Compressors1000 | Air Compressors | 1000 | 0.3315 | 1.1175 | 4.1882 | 0.0049 | 0.1137 | 486 | 0.0299 |
| 2016 | 2016Air Compressors Composite | Air Compressors Composite | | 0.0704 | 0.3207 | 0.4729 | 0.0007 | 0.0318 | 63.6 | 0.0064 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 2016Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2016 | 2016Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2016 | 2016Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0220 | 0.2223 | 0.2106 | 0.0004 | 0.0058 | 31.0 | 0.0020 |
| 2016 | 2016Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0349 | 0.4671 | 0.3308 | 0.0009 | 0.0125 | 77.1 | 0.0031 |
| 2016 | 2016Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0566 | 0.7540 | 0.4376 | 0.0016 | 0.0156 | 141 | 0.0051 |
| 2016 | 2016Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0628 | 0.3425 | 0.3887 | 0.0021 | 0.0114 | 188 | 0.0057 |
| 2016 | 2016Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.1033 | 0.5511 | 0.6252 | 0.0031 | 0.0186 | 311 | 0.0093 |
| 2016 | 2016Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.2045 | 1.0889 | 1.2440 | 0.0062 | 0.0369 | 615 | 0.0185 |
| 2016 | 2016Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.3273 | 1.6484 | 4.6465 | 0.0093 | 0.1011 | 928 | 0.0295 |
| 2016 | 2016Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0623 | 0.5016 | 0.5340 | 0.0017 | 0.0160 | 165 | 0.0056 |
| 2016 | 2016Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0462 | 0.0001 | 0.0019 | 6.3 | 0.0007 |
| 2016 | 2016Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0243 | 0.0771 | 0.1432 | 0.0002 | 0.0070 | 17.6 | 0.0022 |
| 2016 | 2016Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0088 | 0.0418 | 0.0542 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2016 | 2016Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2016 | 2016Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0703 | 0.2673 | 0.2562 | 0.0004 | 0.0186 | 30.2 | 0.0063 |
| 2016 | 2016Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0809 | 0.4724 | 0.5783 | 0.0009 | 0.0436 | 74.1 | 0.0073 |
| 2016 | 2016Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.1226 | 0.8668 | 1.0454 | 0.0018 | 0.0525 | 160 | 0.0111 |
| 2016 | 2016Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0756 | 0.3936 | 0.4589 | 0.0007 | 0.0336 | 58.5 | 0.0068 |
| 2016 | 2016Cranes50 | Cranes | 50 | 0.0779 | 0.2655 | 0.2159 | 0.0003 | 0.0185 | 23.2 | 0.0070 |
| 2016 | 2016Cranes120 | Cranes | 120 | 0.0744 | 0.3533 | 0.4476 | 0.0006 | 0.0378 | 50.1 | 0.0067 |
| 2016 | 2016Cranes175 | Cranes | 175 | 0.0862 | 0.4783 | 0.6099 | 0.0009 | 0.0346 | 80.3 | 0.0078 |
| 2016 | 2016Cranes250 | Cranes | 250 | 0.0875 | 0.2634 | 0.7534 | 0.0013 | 0.0259 | 112 | 0.0079 |
| 2016 | 2016Cranes500 | Cranes | 500 | 0.1325 | 0.4431 | 1.0723 | 0.0018 | 0.0387 | 180 | 0.0120 |
| 2016 | 2016Cranes750 | Cranes | 750 | 0.2244 | 0.7448 | 1.8635 | 0.0030 | 0.0663 | 303 | 0.0202 |
| 2016 | 2016Cranes9999 | Cranes | 9999 | 0.8246 | 2.7017 | 8.7644 | 0.0098 | 0.2555 | 971 | 0.0744 |
| 2016 | 2016Cranes Composite | Cranes Composite | | 0.1137 | 0.4263 | 0.9387 | 0.0014 | 0.0388 | 129 | 0.0103 |
| 2016 | 2016Crawler Tractors50 | Crawler Tractors | 50 | 0.0944 | 0.3015 | 0.2386 | 0.0003 | 0.0215 | 24.9 | 0.0085 |
| 2016 | 2016Crawler Tractors120 | Crawler Tractors | 120 | 0.1073 | 0.4739 | 0.6379 | 0.0008 | 0.0533 | 65.8 | 0.0097 |
| 2016 | 2016Crawler Tractors175 | Crawler Tractors | 175 | 0.1427 | 0.7361 | 1.0097 | 0.0014 | 0.0567 | 121 | 0.0129 |
| 2016 | 2016Crawler Tractors250 | Crawler Tractors | 250 | 0.1496 | 0.4452 | 1.2431 | 0.0019 | 0.0468 | 166 | 0.0135 |
| 2016 | 2016Crawler Tractors500 | Crawler Tractors | 500 | 0.2183 | 0.7903 | 1.7438 | 0.0025 | 0.0669 | 259 | 0.0197 |
| 2016 | 2016Crawler Tractors750 | Crawler Tractors | 750 | 0.3930 | 1.4137 | 3.2045 | 0.0047 | 0.1213 | 465 | 0.0355 |
| 2016 | 2016Crawler Tractors1000 | Crawler Tractors | 1000 | 0.5970 | 2.2313 | 6.3308 | 0.0066 | 0.1930 | 658 | 0.0539 |
| 2016 | 2016Crawler Tractors Composite | Crawler Tractors Composite | | 0.1335 | 0.5549 | 0.9315 | 0.0013 | 0.0546 | 114 | 0.0120 |
| 2016 | 2016Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.1234 | 0.4493 | 0.3877 | 0.0006 | 0.0310 | 44.0 | 0.0111 |
| 2016 | 2016Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.1054 | 0.5594 | 0.6775 | 0.0010 | 0.0555 | 83.1 | 0.0095 |
| 2016 | 2016Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1513 | 0.9539 | 1.1428 | 0.0019 | 0.0620 | 167 | 0.0136 |
| 2016 | 2016Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1553 | 0.5071 | 1.4547 | 0.0028 | 0.0453 | 245 | 0.0140 |
| 2016 | 2016Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.2240 | 0.7541 | 1.9256 | 0.0037 | 0.0648 | 374 | 0.0202 |
| 2016 | 2016Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3524 | 1.1817 | 3.1408 | 0.0059 | 0.1031 | 589 | 0.0318 |
| 2016 | 2016Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.9152 | 2.9318 | 10.8280 | 0.0131 | 0.2940 | 1,308 | 0.0826 |
| 2016 | 2016Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1337 | 0.6461 | 0.8965 | 0.0015 | 0.0538 | 132 | 0.0121 |
| 2016 | 2016Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0093 | 0.0314 | 0.0587 | 0.0001 | 0.0024 | 7.6 | 0.0008 |
| 2016 | 2016Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0093 | 0.0314 | 0.0587 | 0.0001 | 0.0024 | 7.6 | 0.0008 |
| 2016 | 2016Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2016 | 2016Excavators50 | Excavators | 50 | 0.0581 | 0.2621 | 0.2166 | 0.0003 | 0.0147 | 25.0 | 0.0052 |
| 2016 | 2016Excavators120 | Excavators | 120 | 0.0833 | 0.5070 | 0.5292 | 0.0009 | 0.0395 | 73.6 | 0.0075 |
| 2016 | 2016Excavators175 | Excavators | 175 | 0.0972 | 0.6648 | 0.6563 | 0.0013 | 0.0355 | 112 | 0.0088 |
| 2016 | 2016Excavators250 | Excavators | 250 | 0.1054 | 0.3389 | 0.7862 | 0.0018 | 0.0263 | 159 | 0.0095 |
| 2016 | 2016Excavators500 | Excavators | 500 | 0.1496 | 0.4851 | 1.0236 | 0.0023 | 0.0366 | 234 | 0.0135 |
| 2016 | 2016Excavators750 | Excavators | 750 | 0.2493 | 0.8037 | 1.7546 | 0.0039 | 0.0618 | 387 | 0.0225 |
| 2016 | 2016Excavators Composite | Excavators Composite | | 0.0988 | 0.5213 | 0.6603 | 0.0013 | 0.0332 | 120 | 0.0089 |
| 2016 | 2016Forklifts50 | Forklifts | 50 | 0.0284 | 0.1489 | 0.1276 | 0.0002 | 0.0080 | 14.7 | 0.0026 |
| 2016 | 2016Forklifts120 | Forklifts | 120 | 0.0313 | 0.2133 | 0.2116 | 0.0004 | 0.0149 | 31.2 | 0.0028 |
| 2016 | 2016Forklifts175 | Forklifts | 175 | 0.0454 | 0.3320 | 0.3050 | 0.0006 | 0.0167 | 56.1 | 0.0041 |
| 2016 | 2016Forklifts250 | Forklifts | 250 | 0.0493 | 0.1572 | 0.3531 | 0.0009 | 0.0118 | 77.1 | 0.0044 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 2016Forklifts500 | Forklifts | 500 | 0.0693 | 0.2150 | 0.4532 | 0.0011 | 0.0165 | 111 | 0.0062 |
| 2016 | 2016Forklifts Composite | Forklifts Composite | | 0.0427 | 0.2190 | 0.2816 | 0.0006 | 0.0137 | 54.4 | 0.0039 |
| 2016 | 2016Generator Sets15 | Generator Sets | 15 | 0.0130 | 0.0652 | 0.0899 | 0.0002 | 0.0048 | 10.2 | 0.0012 |
| 2016 | 2016Generator Sets25 | Generator Sets | 25 | 0.0241 | 0.0811 | 0.1494 | 0.0002 | 0.0076 | 17.6 | 0.0022 |
| 2016 | 2016Generator Sets50 | Generator Sets | 50 | 0.0630 | 0.2393 | 0.2532 | 0.0004 | 0.0174 | 30.6 | 0.0057 |
| 2016 | 2016Generator Sets120 | Generator Sets | 120 | 0.0814 | 0.4767 | 0.6102 | 0.0009 | 0.0431 | 77.9 | 0.0073 |
| 2016 | 2016Generator Sets175 | Generator Sets | 175 | 0.1006 | 0.7336 | 0.9416 | 0.0016 | 0.0432 | 142 | 0.0091 |
| 2016 | 2016Generator Sets250 | Generator Sets | 250 | 0.1003 | 0.4059 | 1.2339 | 0.0024 | 0.0342 | 213 | 0.0091 |
| 2016 | 2016Generator Sets500 | Generator Sets | 500 | 0.1437 | 0.6411 | 1.7299 | 0.0033 | 0.0509 | 337 | 0.0130 |
| 2016 | 2016Generator Sets750 | Generator Sets | 750 | 0.2399 | 1.0349 | 2.8965 | 0.0055 | 0.0840 | 544 | 0.0216 |
| 2016 | 2016Generator Sets9999 | Generator Sets | 9999 | 0.6052 | 2.2398 | 8.4480 | 0.0105 | 0.2114 | 1,049 | 0.0546 |
| 2016 | 2016Generator Sets Composite | Generator Sets Composite | | 0.0581 | 0.2862 | 0.4370 | 0.0007 | 0.0241 | 61.0 | 0.0052 |
| 2016 | 2016Graders50 | Graders | 50 | 0.0816 | 0.3003 | 0.2476 | 0.0004 | 0.0196 | 27.5 | 0.0074 |
| 2016 | 2016Graders120 | Graders | 120 | 0.1002 | 0.5196 | 0.6220 | 0.0009 | 0.0499 | 75.0 | 0.0090 |
| 2016 | 2016Graders175 | Graders | 175 | 0.1215 | 0.7310 | 0.8624 | 0.0014 | 0.0476 | 124 | 0.0110 |
| 2016 | 2016Graders250 | Graders | 250 | 0.1250 | 0.3936 | 1.0444 | 0.0019 | 0.0359 | 172 | 0.0113 |
| 2016 | 2016Graders500 | Graders | 500 | 0.1579 | 0.5525 | 1.2394 | 0.0023 | 0.0446 | 229 | 0.0142 |
| 2016 | 2016Graders750 | Graders | 750 | 0.3362 | 1.1682 | 2.7050 | 0.0049 | 0.0960 | 486 | 0.0303 |
| 2016 | 2016Graders Composite | Graders Composite | | 0.1197 | 0.5883 | 0.8866 | 0.0015 | 0.0441 | 133 | 0.0108 |
| 2016 | 2016Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1806 | 0.6988 | 1.0550 | 0.0011 | 0.0892 | 93.7 | 0.0163 |
| 2016 | 2016Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1782 | 0.8166 | 1.2825 | 0.0015 | 0.0723 | 130 | 0.0161 |
| 2016 | 2016Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1415 | 0.4155 | 1.1803 | 0.0015 | 0.0482 | 130 | 0.0128 |
| 2016 | 2016Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.5701 | 2.3586 | 4.7515 | 0.0057 | 0.1903 | 568 | 0.0514 |
| 2016 | 2016Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.8608 | 3.6939 | 8.8128 | 0.0082 | 0.2875 | 814 | 0.0777 |
| 2016 | 2016Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1803 | 0.7067 | 1.4108 | 0.0017 | 0.0670 | 151 | 0.0163 |
| 2016 | 2016Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.1164 | 0.7552 | 0.7647 | 0.0014 | 0.0417 | 125 | 0.0105 |
| 2016 | 2016Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.1179 | 0.3651 | 0.8678 | 0.0019 | 0.0290 | 167 | 0.0106 |
| 2016 | 2016Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1855 | 0.5796 | 1.2524 | 0.0027 | 0.0448 | 272 | 0.0167 |
| 2016 | 2016Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.3026 | 0.9397 | 2.1025 | 0.0044 | 0.0741 | 442 | 0.0273 |
| 2016 | 2016Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.4576 | 1.4117 | 4.8929 | 0.0063 | 0.1360 | 625 | 0.0413 |
| 2016 | 2016Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1816 | 0.5831 | 1.3322 | 0.0027 | 0.0459 | 260 | 0.0164 |
| 2016 | 2016Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2016 | 2016Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2016 | 2016Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0530 | 0.2447 | 0.2274 | 0.0004 | 0.0143 | 28.0 | 0.0048 |
| 2016 | 2016Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0747 | 0.5170 | 0.5495 | 0.0009 | 0.0384 | 80.9 | 0.0067 |
| 2016 | 2016Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0729 | 0.5862 | 0.5856 | 0.0012 | 0.0291 | 107 | 0.0066 |
| 2016 | 2016Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1243 | 0.4868 | 1.0415 | 0.0025 | 0.0350 | 254 | 0.0112 |
| 2016 | 2016Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0720 | 0.3602 | 0.5680 | 0.0013 | 0.0234 | 123 | 0.0065 |
| 2016 | 2016Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2016 | 2016Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2016 | 2016Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0700 | 0.2449 | 0.2003 | 0.0003 | 0.0171 | 21.7 | 0.0063 |
| 2016 | 2016Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0895 | 0.4343 | 0.5394 | 0.0007 | 0.0461 | 62.0 | 0.0081 |
| 2016 | 2016Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0993 | 0.5671 | 0.7059 | 0.0011 | 0.0398 | 95.9 | 0.0090 |
| 2016 | 2016Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0990 | 0.2950 | 0.8757 | 0.0015 | 0.0279 | 136 | 0.0089 |
| 2016 | 2016Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1832 | 0.5599 | 1.4849 | 0.0026 | 0.0511 | 265 | 0.0165 |
| 2016 | 2016Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.3043 | 0.9228 | 2.5436 | 0.0044 | 0.0861 | 437 | 0.0275 |
| 2016 | 2016Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.4283 | 1.3244 | 4.9259 | 0.0056 | 0.1385 | 560 | 0.0386 |
| 2016 | 2016Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1267 | 0.4731 | 1.0122 | 0.0016 | 0.0425 | 152 | 0.0114 |
| 2016 | 2016Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0970 | 0.3384 | 0.2785 | 0.0004 | 0.0237 | 30.3 | 0.0088 |
| 2016 | 2016Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0869 | 0.4228 | 0.5267 | 0.0007 | 0.0450 | 60.7 | 0.0078 |
| 2016 | 2016Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.1251 | 0.7182 | 0.8969 | 0.0014 | 0.0504 | 122 | 0.0113 |
| 2016 | 2016Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.1046 | 0.3141 | 0.9355 | 0.0016 | 0.0298 | 145 | 0.0094 |
| 2016 | 2016Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1305 | 0.4029 | 1.0706 | 0.0019 | 0.0367 | 192 | 0.0118 |
| 2016 | 2016Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.5874 | 1.7492 | 6.5148 | 0.0073 | 0.1827 | 741 | 0.0530 |
| 2016 | 2016Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.1202 | 0.4608 | 0.9913 | 0.0015 | 0.0411 | 141 | 0.0108 |
| 2016 | 2016Pavers25 | Pavers | 25 | 0.0230 | 0.0774 | 0.1448 | 0.0002 | 0.0061 | 18.7 | 0.0021 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 2016Pavers50 | Pavers | 50 | 0.1117 | 0.3339 | 0.2694 | 0.0004 | 0.0252 | 28.0 | 0.0101 |
| 2016 | 2016Pavers120 | Pavers | 120 | 0.1164 | 0.4930 | 0.7030 | 0.0008 | 0.0591 | 69.2 | 0.0105 |
| 2016 | 2016Pavers175 | Pavers | 175 | 0.1524 | 0.7678 | 1.1274 | 0.0014 | 0.0627 | 128 | 0.0138 |
| 2016 | 2016Pavers250 | Pavers | 250 | 0.1758 | 0.5369 | 1.5485 | 0.0022 | 0.0587 | 194 | 0.0159 |
| 2016 | 2016Pavers500 | Pavers | 500 | 0.1956 | 0.7646 | 1.6718 | 0.0023 | 0.0641 | 233 | 0.0177 |
| 2016 | 2016Pavers Composite | Pavers Composite | | 0.1269 | 0.5135 | 0.7128 | 0.0009 | 0.0489 | 77.9 | 0.0114 |
| 2016 | 2016Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2016 | 2016Paving Equipment50 | Paving Equipment | 50 | 0.0953 | 0.2829 | 0.2297 | 0.0003 | 0.0216 | 23.9 | 0.0086 |
| 2016 | 2016Paving Equipment120 | Paving Equipment | 120 | 0.0912 | 0.3862 | 0.5522 | 0.0006 | 0.0468 | 54.5 | 0.0082 |
| 2016 | 2016Paving Equipment175 | Paving Equipment | 175 | 0.1188 | 0.6004 | 0.8857 | 0.0011 | 0.0492 | 101 | 0.0107 |
| 2016 | 2016Paving Equipment250 | Paving Equipment | 250 | 0.1077 | 0.3302 | 0.9703 | 0.0014 | 0.0360 | 122 | 0.0097 |
| 2016 | 2016Paving Equipment Composite | Paving Equipment Composite | | 0.0965 | 0.4198 | 0.6393 | 0.0008 | 0.0436 | 68.9 | 0.0087 |
| 2016 | 2016Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2016 | 2016Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2016 | 2016Pressure Washers15 | Pressure Washers | 15 | 0.0062 | 0.0312 | 0.0431 | 0.0001 | 0.0023 | 4.9 | 0.0006 |
| 2016 | 2016Pressure Washers25 | Pressure Washers | 25 | 0.0098 | 0.0329 | 0.0606 | 0.0001 | 0.0031 | 7.1 | 0.0009 |
| 2016 | 2016Pressure Washers50 | Pressure Washers | 50 | 0.0222 | 0.0943 | 0.1139 | 0.0002 | 0.0069 | 14.3 | 0.0020 |
| 2016 | 2016Pressure Washers120 | Pressure Washers | 120 | 0.0217 | 0.1404 | 0.1798 | 0.0003 | 0.0114 | 24.1 | 0.0020 |
| 2016 | 2016Pressure Washers Composite | Pressure Washers Composite | | 0.0121 | 0.0579 | 0.0764 | 0.0001 | 0.0044 | 9.4 | 0.0011 |
| 2016 | 2016Pumps15 | Pumps | 15 | 0.0106 | 0.0474 | 0.0660 | 0.0001 | 0.0038 | 7.4 | 0.0010 |
| 2016 | 2016Pumps25 | Pumps | 25 | 0.0296 | 0.0897 | 0.1651 | 0.0002 | 0.0088 | 19.5 | 0.0027 |
| 2016 | 2016Pumps50 | Pumps | 50 | 0.0765 | 0.2823 | 0.2874 | 0.0004 | 0.0206 | 34.3 | 0.0069 |
| 2016 | 2016Pumps120 | Pumps | 120 | 0.0851 | 0.4842 | 0.6196 | 0.0009 | 0.0453 | 77.9 | 0.0077 |
| 2016 | 2016Pumps175 | Pumps | 175 | 0.1044 | 0.7350 | 0.9440 | 0.0016 | 0.0448 | 140 | 0.0094 |
| 2016 | 2016Pumps250 | Pumps | 250 | 0.1005 | 0.3911 | 1.1887 | 0.0023 | 0.0338 | 201 | 0.0091 |
| 2016 | 2016Pumps500 | Pumps | 500 | 0.1566 | 0.6672 | 1.7955 | 0.0034 | 0.0542 | 345 | 0.0141 |
| 2016 | 2016Pumps750 | Pumps | 750 | 0.2663 | 1.1031 | 3.0795 | 0.0057 | 0.0916 | 571 | 0.0240 |
| 2016 | 2016Pumps9999 | Pumps | 9999 | 0.8096 | 2.9411 | 11.0444 | 0.0136 | 0.2798 | 1,355 | 0.0730 |
| 2016 | 2016Pumps Composite | Pumps Composite | | 0.0562 | 0.2785 | 0.3830 | 0.0006 | 0.0239 | 49.6 | 0.0051 |
| 2016 | 2016Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2016 | 2016Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0039 | 13.3 | 0.0015 |
| 2016 | 2016Rollers50 | Rollers | 50 | 0.0798 | 0.2680 | 0.2323 | 0.0003 | 0.0191 | 26.0 | 0.0072 |
| 2016 | 2016Rollers120 | Rollers | 120 | 0.0795 | 0.3971 | 0.5112 | 0.0007 | 0.0416 | 59.0 | 0.0072 |
| 2016 | 2016Rollers175 | Rollers | 175 | 0.1033 | 0.6152 | 0.7968 | 0.0012 | 0.0431 | 108 | 0.0093 |
| 2016 | 2016Rollers250 | Rollers | 250 | 0.1042 | 0.3463 | 0.9961 | 0.0017 | 0.0333 | 153 | 0.0094 |
| 2016 | 2016Rollers500 | Rollers | 500 | 0.1391 | 0.5319 | 1.2666 | 0.0022 | 0.0442 | 219 | 0.0126 |
| 2016 | 2016Rollers Composite | Rollers Composite | | 0.0792 | 0.3944 | 0.5273 | 0.0008 | 0.0353 | 67.0 | 0.0071 |
| 2016 | 2016Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0840 | 0.3459 | 0.2954 | 0.0004 | 0.0216 | 33.9 | 0.0076 |
| 2016 | 2016Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0729 | 0.4231 | 0.4742 | 0.0007 | 0.0369 | 62.4 | 0.0066 |
| 2016 | 2016Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.1081 | 0.7236 | 0.7797 | 0.0014 | 0.0423 | 125 | 0.0098 |
| 2016 | 2016Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.1107 | 0.3592 | 0.9207 | 0.0019 | 0.0302 | 171 | 0.0100 |
| 2016 | 2016Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1590 | 0.5205 | 1.2089 | 0.0025 | 0.0428 | 257 | 0.0143 |
| 2016 | 2016Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0775 | 0.4549 | 0.5104 | 0.0008 | 0.0372 | 70.3 | 0.0070 |
| 2016 | 2016Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1852 | 0.8280 | 1.3073 | 0.0015 | 0.0740 | 129 | 0.0167 |
| 2016 | 2016Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.2099 | 0.6066 | 1.7084 | 0.0021 | 0.0707 | 183 | 0.0189 |
| 2016 | 2016Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2794 | 1.1678 | 2.2384 | 0.0026 | 0.0915 | 265 | 0.0252 |
| 2016 | 2016Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.4216 | 1.7523 | 3.4334 | 0.0040 | 0.1388 | 399 | 0.0380 |
| 2016 | 2016Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.6575 | 2.8291 | 6.5404 | 0.0060 | 0.2169 | 592 | 0.0593 |
| 2016 | 2016Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2591 | 0.9834 | 2.0891 | 0.0025 | 0.0858 | 239 | 0.0234 |
| 2016 | 2016Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2016 | 2016Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0901 | 0.3349 | 0.2783 | 0.0004 | 0.0218 | 31.1 | 0.0081 |
| 2016 | 2016Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0773 | 0.4063 | 0.4828 | 0.0007 | 0.0387 | 58.9 | 0.0070 |
| 2016 | 2016Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.1022 | 0.6242 | 0.7295 | 0.0012 | 0.0402 | 106 | 0.0092 |
| 2016 | 2016Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.1056 | 0.3357 | 0.8897 | 0.0017 | 0.0302 | 149 | 0.0095 |
| 2016 | 2016Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1592 | 0.5594 | 1.2576 | 0.0023 | 0.0449 | 237 | 0.0144 |
| 2016 | 2016Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.3283 | 1.1450 | 2.6587 | 0.0049 | 0.0937 | 486 | 0.0296 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 2016Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.4397 | 1.5570 | 4.9948 | 0.0060 | 0.1424 | 594 | 0.0397 |
| 2016 | 2016Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0983 | 0.4557 | 0.7114 | 0.0012 | 0.0375 | 109 | 0.0089 |
| 2016 | 2016Scrapers120 | Scrapers | 120 | 0.1566 | 0.6775 | 0.9295 | 0.0011 | 0.0781 | 93.9 | 0.0141 |
| 2016 | 2016Scrapers175 | Scrapers | 175 | 0.1771 | 0.9000 | 1.2619 | 0.0017 | 0.0709 | 148 | 0.0160 |
| 2016 | 2016Scrapers250 | Scrapers | 250 | 0.1911 | 0.5689 | 1.6086 | 0.0024 | 0.0607 | 209 | 0.0172 |
| 2016 | 2016Scrapers500 | Scrapers | 500 | 0.2736 | 1.0107 | 2.2183 | 0.0032 | 0.0851 | 321 | 0.0247 |
| 2016 | 2016Scrapers750 | Scrapers | 750 | 0.4747 | 1.7423 | 3.9270 | 0.0056 | 0.1488 | 555 | 0.0428 |
| 2016 | 2016Scrapers Composite | Scrapers Composite | | 0.2383 | 0.9053 | 1.9017 | 0.0027 | 0.0783 | 262 | 0.0215 |
| 2016 | 2016Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2016 | 2016Signal Boards50 | Signal Boards | 50 | 0.0832 | 0.3134 | 0.3032 | 0.0005 | 0.0219 | 36.2 | 0.0075 |
| 2016 | 2016Signal Boards120 | Signal Boards | 120 | 0.0873 | 0.5072 | 0.6231 | 0.0009 | 0.0466 | 80.2 | 0.0079 |
| 2016 | 2016Signal Boards175 | Signal Boards | 175 | 0.1169 | 0.8288 | 1.0085 | 0.0017 | 0.0498 | 155 | 0.0106 |
| 2016 | 2016Signal Boards250 | Signal Boards | 250 | 0.1318 | 0.4998 | 1.4477 | 0.0029 | 0.0424 | 255 | 0.0119 |
| 2016 | 2016Signal Boards Composite | Signal Boards Composite | | 0.0161 | 0.0921 | 0.1172 | 0.0002 | 0.0060 | 16.7 | 0.0014 |
| 2016 | 2016Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0184 | 0.0594 | 0.1107 | 0.0002 | 0.0053 | 13.8 | 0.0017 |
| 2016 | 2016Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0323 | 0.2089 | 0.1953 | 0.0003 | 0.0094 | 25.5 | 0.0029 |
| 2016 | 2016Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0295 | 0.2695 | 0.2411 | 0.0005 | 0.0138 | 42.8 | 0.0027 |
| 2016 | 2016Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0305 | 0.2184 | 0.2044 | 0.0004 | 0.0106 | 30.3 | 0.0028 |
| 2016 | 2016Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0376 | 0.1300 | 0.1219 | 0.0002 | 0.0093 | 14.1 | 0.0034 |
| 2016 | 2016Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0779 | 0.4123 | 0.5363 | 0.0007 | 0.0403 | 63.8 | 0.0070 |
| 2016 | 2016Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0734 | 0.4695 | 0.6130 | 0.0010 | 0.0308 | 85.8 | 0.0066 |
| 2016 | 2016Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0833 | 0.3013 | 0.8507 | 0.0015 | 0.0280 | 135 | 0.0075 |
| 2016 | 2016Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1260 | 0.5485 | 1.2555 | 0.0022 | 0.0425 | 221 | 0.0114 |
| 2016 | 2016Surfacing Equipment750 | Surfacing Equipment | 750 | 0.2006 | 0.8594 | 2.0266 | 0.0035 | 0.0677 | 347 | 0.0181 |
| 2016 | 2016Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.1045 | 0.4506 | 0.9731 | 0.0017 | 0.0353 | 166 | 0.0094 |
| 2016 | 2016Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2016 | 2016Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2016 | 2016Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0662 | 0.3084 | 0.2720 | 0.0004 | 0.0182 | 31.6 | 0.0060 |
| 2016 | 2016Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0774 | 0.5017 | 0.5324 | 0.0009 | 0.0392 | 75.0 | 0.0070 |
| 2016 | 2016Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.1100 | 0.8005 | 0.7999 | 0.0016 | 0.0429 | 139 | 0.0099 |
| 2016 | 2016Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0979 | 0.3255 | 0.7954 | 0.0018 | 0.0258 | 162 | 0.0088 |
| 2016 | 2016Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0810 | 0.4988 | 0.5192 | 0.0009 | 0.0332 | 78.5 | 0.0073 |
| 2016 | 2016Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0192 | 0.0653 | 0.1216 | 0.0002 | 0.0048 | 15.9 | 0.0017 |
| 2016 | 2016Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0623 | 0.2949 | 0.2536 | 0.0004 | 0.0162 | 30.3 | 0.0056 |
| 2016 | 2016Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0524 | 0.3460 | 0.3526 | 0.0006 | 0.0253 | 51.7 | 0.0047 |
| 2016 | 2016Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0788 | 0.5850 | 0.5574 | 0.0011 | 0.0293 | 101 | 0.0071 |
| 2016 | 2016Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.1025 | 0.3534 | 0.7914 | 0.0019 | 0.0260 | 172 | 0.0092 |
| 2016 | 2016Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1985 | 0.6964 | 1.4092 | 0.0039 | 0.0496 | 345 | 0.0179 |
| 2016 | 2016Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2995 | 1.0443 | 2.1837 | 0.0058 | 0.0758 | 517 | 0.0270 |
| 2016 | 2016Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0610 | 0.3689 | 0.4070 | 0.0008 | 0.0258 | 66.8 | 0.0055 |
| 2016 | 2016Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2016 | 2016Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2016 | 2016Trenchers50 | Trenchers | 50 | 0.1305 | 0.3813 | 0.3141 | 0.0004 | 0.0293 | 32.9 | 0.0118 |
| 2016 | 2016Trenchers120 | Trenchers | 120 | 0.1080 | 0.4563 | 0.6653 | 0.0008 | 0.0551 | 64.9 | 0.0097 |
| 2016 | 2016Trenchers175 | Trenchers | 175 | 0.1678 | 0.8496 | 1.2809 | 0.0016 | 0.0700 | 144 | 0.0151 |
| 2016 | 2016Trenchers250 | Trenchers | 250 | 0.1991 | 0.6260 | 1.8052 | 0.0025 | 0.0691 | 223 | 0.0180 |
| 2016 | 2016Trenchers500 | Trenchers | 500 | 0.2560 | 1.0680 | 2.2757 | 0.0031 | 0.0874 | 311 | 0.0231 |
| 2016 | 2016Trenchers750 | Trenchers | 750 | 0.4852 | 2.0082 | 4.3873 | 0.0059 | 0.1665 | 587 | 0.0438 |
| 2016 | 2016Trenchers Composite | Trenchers Composite | | 0.1200 | 0.4479 | 0.5719 | 0.0007 | 0.0453 | 58.7 | 0.0108 |
| 2016 | 2016Welders15 | Welders | 15 | 0.0089 | 0.0396 | 0.0551 | 0.0001 | 0.0032 | 6.2 | 0.0008 |
| 2016 | 2016Welders25 | Welders | 25 | 0.0171 | 0.0519 | 0.0956 | 0.0001 | 0.0051 | 11.3 | 0.0015 |
| 2016 | 2016Welders50 | Welders | 50 | 0.0717 | 0.2483 | 0.2262 | 0.0003 | 0.0181 | 26.0 | 0.0065 |
| 2016 | 2016Welders120 | Welders | 120 | 0.0494 | 0.2581 | 0.3291 | 0.0005 | 0.0265 | 39.5 | 0.0045 |
| 2016 | 2016Welders175 | Welders | 175 | 0.0852 | 0.5411 | 0.6939 | 0.0011 | 0.0362 | 98.2 | 0.0077 |
| 2016 | 2016Welders250 | Welders | 250 | 0.0700 | 0.2427 | 0.7386 | 0.0013 | 0.0223 | 119 | 0.0063 |
| 2016 | 2016Welders500 | Welders | 500 | 0.0912 | 0.3361 | 0.9056 | 0.0016 | 0.0292 | 168 | 0.0082 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 2016Welders Composite | Welders Composite | | 0.0482 | 0.1951 | 0.2173 | 0.0003 | 0.0168 | 25.6 | 0.0044 |
| 2017 | 2017Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2017 | 2017Aerial Lifts25 | Aerial Lifts | 25 | 0.0146 | 0.0473 | 0.0873 | 0.0001 | 0.0041 | 11.0 | 0.0013 |
| 2017 | 2017Aerial Lifts50 | Aerial Lifts | 50 | 0.0382 | 0.1548 | 0.1580 | 0.0003 | 0.0104 | 19.6 | 0.0034 |
| 2017 | 2017Aerial Lifts120 | Aerial Lifts | 120 | 0.0368 | 0.2336 | 0.2787 | 0.0004 | 0.0194 | 38.1 | 0.0033 |
| 2017 | 2017Aerial Lifts500 | Aerial Lifts | 500 | 0.0890 | 0.3983 | 0.9891 | 0.0021 | 0.0299 | 213 | 0.0080 |
| 2017 | 2017Aerial Lifts750 | Aerial Lifts | 750 | 0.1647 | 0.7200 | 1.8445 | 0.0039 | 0.0549 | 385 | 0.0149 |
| 2017 | 2017Aerial Lifts Composite | Aerial Lifts Composite | | 0.0358 | 0.1768 | 0.2310 | 0.0004 | 0.0134 | 34.7 | 0.0032 |
| 2017 | 2017Air Compressors15 | Air Compressors | 15 | 0.0101 | 0.0458 | 0.0624 | 0.0001 | 0.0035 | 7.2 | 0.0009 |
| 2017 | 2017Air Compressors25 | Air Compressors | 25 | 0.0212 | 0.0654 | 0.1205 | 0.0002 | 0.0062 | 14.4 | 0.0019 |
| 2017 | 2017Air Compressors50 | Air Compressors | 50 | 0.0591 | 0.2209 | 0.1914 | 0.0003 | 0.0148 | 22.3 | 0.0053 |
| 2017 | 2017Air Compressors120 | Air Compressors | 120 | 0.0562 | 0.3122 | 0.3674 | 0.0006 | 0.0294 | 47.0 | 0.0051 |
| 2017 | 2017Air Compressors175 | Air Compressors | 175 | 0.0752 | 0.4998 | 0.5700 | 0.0010 | 0.0306 | 88.5 | 0.0068 |
| 2017 | 2017Air Compressors250 | Air Compressors | 250 | 0.0791 | 0.2692 | 0.7388 | 0.0015 | 0.0230 | 131 | 0.0071 |
| 2017 | 2017Air Compressors500 | Air Compressors | 500 | 0.1321 | 0.4598 | 1.1363 | 0.0023 | 0.0381 | 232 | 0.0119 |
| 2017 | 2017Air Compressors750 | Air Compressors | 750 | 0.2057 | 0.7106 | 1.8141 | 0.0036 | 0.0600 | 358 | 0.0186 |
| 2017 | 2017Air Compressors1000 | Air Compressors | 1000 | 0.3127 | 1.0739 | 3.9506 | 0.0049 | 0.1048 | 486 | 0.0282 |
| 2017 | 2017Air Compressors Composite | Air Compressors Composite | | 0.0641 | 0.3165 | 0.4318 | 0.0007 | 0.0282 | 63.6 | 0.0058 |
| 2017 | 2017Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2017 | 2017Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2017 | 2017Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0210 | 0.2215 | 0.1992 | 0.0004 | 0.0044 | 31.0 | 0.0019 |
| 2017 | 2017Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0326 | 0.4667 | 0.2962 | 0.0009 | 0.0095 | 77.1 | 0.0029 |
| 2017 | 2017Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0519 | 0.7541 | 0.3589 | 0.0016 | 0.0121 | 141 | 0.0047 |
| 2017 | 2017Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0580 | 0.3426 | 0.3124 | 0.0021 | 0.0088 | 188 | 0.0052 |
| 2017 | 2017Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0955 | 0.5511 | 0.5035 | 0.0031 | 0.0145 | 311 | 0.0086 |
| 2017 | 2017Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1891 | 1.0890 | 1.0018 | 0.0062 | 0.0287 | 615 | 0.0171 |
| 2017 | 2017Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.3016 | 1.6457 | 4.3972 | 0.0093 | 0.0855 | 928 | 0.0272 |
| 2017 | 2017Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0578 | 0.5013 | 0.4692 | 0.0017 | 0.0126 | 165 | 0.0052 |
| 2017 | 2017Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2017 | 2017Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0237 | 0.0762 | 0.1411 | 0.0002 | 0.0067 | 17.6 | 0.0021 |
| 2017 | 2017Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0087 | 0.0417 | 0.0539 | 0.0001 | 0.0022 | 7.2 | 0.0008 |
| 2017 | 2017Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2017 | 2017Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0625 | 0.2602 | 0.2473 | 0.0004 | 0.0167 | 30.2 | 0.0056 |
| 2017 | 2017Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0728 | 0.4691 | 0.5331 | 0.0009 | 0.0385 | 74.1 | 0.0066 |
| 2017 | 2017Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.1116 | 0.8663 | 0.9349 | 0.0018 | 0.0466 | 160 | 0.0101 |
| 2017 | 2017Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0679 | 0.3892 | 0.4267 | 0.0007 | 0.0298 | 58.5 | 0.0061 |
| 2017 | 2017Cranes50 | Cranes | 50 | 0.0709 | 0.2588 | 0.2087 | 0.0003 | 0.0168 | 23.2 | 0.0064 |
| 2017 | 2017Cranes120 | Cranes | 120 | 0.0690 | 0.3509 | 0.4155 | 0.0006 | 0.0341 | 50.1 | 0.0062 |
| 2017 | 2017Cranes175 | Cranes | 175 | 0.0807 | 0.4774 | 0.5549 | 0.0009 | 0.0314 | 80.3 | 0.0073 |
| 2017 | 2017Cranes250 | Cranes | 250 | 0.0830 | 0.2572 | 0.6832 | 0.0013 | 0.0235 | 112 | 0.0075 |
| 2017 | 2017Cranes500 | Cranes | 500 | 0.1262 | 0.4243 | 0.9704 | 0.0018 | 0.0351 | 180 | 0.0114 |
| 2017 | 2017Cranes750 | Cranes | 750 | 0.2137 | 0.7132 | 1.6890 | 0.0030 | 0.0602 | 303 | 0.0193 |
| 2017 | 2017Cranes9999 | Cranes | 9999 | 0.7823 | 2.5343 | 8.2827 | 0.0098 | 0.2344 | 971 | 0.0706 |
| 2017 | 2017Cranes Composite | Cranes Composite | | 0.1073 | 0.4152 | 0.8625 | 0.0014 | 0.0352 | 129 | 0.0097 |
| 2017 | 2017Crawler Tractors50 | Crawler Tractors | 50 | 0.0876 | 0.2947 | 0.2312 | 0.0003 | 0.0197 | 24.9 | 0.0079 |
| 2017 | 2017Crawler Tractors120 | Crawler Tractors | 120 | 0.1008 | 0.4707 | 0.5971 | 0.0008 | 0.0489 | 65.8 | 0.0091 |
| 2017 | 2017Crawler Tractors175 | Crawler Tractors | 175 | 0.1347 | 0.7342 | 0.9293 | 0.0014 | 0.0522 | 121 | 0.0122 |
| 2017 | 2017Crawler Tractors250 | Crawler Tractors | 250 | 0.1413 | 0.4308 | 1.1399 | 0.0019 | 0.0426 | 166 | 0.0127 |
| 2017 | 2017Crawler Tractors500 | Crawler Tractors | 500 | 0.2069 | 0.7531 | 1.5987 | 0.0025 | 0.0609 | 259 | 0.0187 |
| 2017 | 2017Crawler Tractors750 | Crawler Tractors | 750 | 0.3726 | 1.3475 | 2.9402 | 0.0047 | 0.1106 | 465 | 0.0336 |
| 2017 | 2017Crawler Tractors1000 | Crawler Tractors | 1000 | 0.5672 | 2.1186 | 6.0245 | 0.0066 | 0.1793 | 658 | 0.0512 |
| 2017 | 2017Crawler Tractors Composite | Crawler Tractors Composite | | 0.1258 | 0.5464 | 0.8617 | 0.0013 | 0.0500 | 114 | 0.0114 |
| 2017 | 2017Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.1086 | 0.4355 | 0.3739 | 0.0006 | 0.0274 | 44.0 | 0.0098 |
| 2017 | 2017Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0948 | 0.5547 | 0.6210 | 0.0010 | 0.0484 | 83.1 | 0.0086 |
| 2017 | 2017Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1380 | 0.9527 | 1.0155 | 0.0019 | 0.0545 | 167 | 0.0124 |
| 2017 | 2017Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1466 | 0.4993 | 1.2854 | 0.0028 | 0.0405 | 245 | 0.0132 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 2017Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.2135 | 0.7357 | 1.7109 | 0.0037 | 0.0582 | 374 | 0.0193 |
| 2017 | 2017Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3347 | 1.1549 | 2.7641 | 0.0059 | 0.0920 | 589 | 0.0302 |
| 2017 | 2017Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.8702 | 2.8310 | 10.1798 | 0.0131 | 0.2693 | 1,308 | 0.0785 |
| 2017 | 2017Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1219 | 0.6388 | 0.8113 | 0.0015 | 0.0473 | 132 | 0.0110 |
| 2017 | 2017Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0585 | 0.0001 | 0.0023 | 7.6 | 0.0008 |
| 2017 | 2017Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0585 | 0.0001 | 0.0023 | 7.6 | 0.0008 |
| 2017 | 2017Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2017 | 2017Excavators50 | Excavators | 50 | 0.0521 | 0.2568 | 0.2082 | 0.0003 | 0.0128 | 25.0 | 0.0047 |
| 2017 | 2017Excavators120 | Excavators | 120 | 0.0760 | 0.5042 | 0.4840 | 0.0009 | 0.0340 | 73.6 | 0.0069 |
| 2017 | 2017Excavators175 | Excavators | 175 | 0.0896 | 0.6644 | 0.5783 | 0.0013 | 0.0308 | 112 | 0.0081 |
| 2017 | 2017Excavators250 | Excavators | 250 | 0.0992 | 0.3354 | 0.6878 | 0.0018 | 0.0231 | 159 | 0.0090 |
| 2017 | 2017Excavators500 | Excavators | 500 | 0.1415 | 0.4762 | 0.8988 | 0.0023 | 0.0323 | 234 | 0.0128 |
| 2017 | 2017Excavators750 | Excavators | 750 | 0.2356 | 0.7890 | 1.5359 | 0.0039 | 0.0544 | 387 | 0.0213 |
| 2017 | 2017Excavators Composite | Excavators Composite | | 0.0916 | 0.5184 | 0.5858 | 0.0013 | 0.0289 | 120 | 0.0083 |
| 2017 | 2017Forklifts50 | Forklifts | 50 | 0.0254 | 0.1463 | 0.1228 | 0.0002 | 0.0068 | 14.7 | 0.0023 |
| 2017 | 2017Forklifts120 | Forklifts | 120 | 0.0287 | 0.2125 | 0.1926 | 0.0004 | 0.0128 | 31.2 | 0.0026 |
| 2017 | 2017Forklifts175 | Forklifts | 175 | 0.0425 | 0.3322 | 0.2685 | 0.0006 | 0.0146 | 56.1 | 0.0038 |
| 2017 | 2017Forklifts250 | Forklifts | 250 | 0.0467 | 0.1564 | 0.3057 | 0.0009 | 0.0103 | 77.1 | 0.0042 |
| 2017 | 2017Forklifts500 | Forklifts | 500 | 0.0659 | 0.2139 | 0.3937 | 0.0011 | 0.0145 | 111 | 0.0059 |
| 2017 | 2017Forklifts Composite | Forklifts Composite | | 0.0399 | 0.2181 | 0.2493 | 0.0006 | 0.0119 | 54.4 | 0.0036 |
| 2017 | 2017Generator Sets15 | Generator Sets | 15 | 0.0126 | 0.0647 | 0.0874 | 0.0002 | 0.0045 | 10.2 | 0.0011 |
| 2017 | 2017Generator Sets25 | Generator Sets | 25 | 0.0236 | 0.0799 | 0.1471 | 0.0002 | 0.0073 | 17.6 | 0.0021 |
| 2017 | 2017Generator Sets50 | Generator Sets | 50 | 0.0559 | 0.2326 | 0.2443 | 0.0004 | 0.0156 | 30.6 | 0.0050 |
| 2017 | 2017Generator Sets120 | Generator Sets | 120 | 0.0725 | 0.4728 | 0.5629 | 0.0009 | 0.0381 | 77.9 | 0.0065 |
| 2017 | 2017Generator Sets175 | Generator Sets | 175 | 0.0902 | 0.7328 | 0.8439 | 0.0016 | 0.0383 | 142 | 0.0081 |
| 2017 | 2017Generator Sets250 | Generator Sets | 250 | 0.0926 | 0.3988 | 1.1003 | 0.0024 | 0.0307 | 213 | 0.0084 |
| 2017 | 2017Generator Sets500 | Generator Sets | 500 | 0.1343 | 0.6237 | 1.5464 | 0.0033 | 0.0459 | 337 | 0.0121 |
| 2017 | 2017Generator Sets750 | Generator Sets | 750 | 0.2224 | 1.0068 | 2.5746 | 0.0055 | 0.0754 | 544 | 0.0201 |
| 2017 | 2017Generator Sets9999 | Generator Sets | 9999 | 0.5622 | 2.1570 | 7.9778 | 0.0105 | 0.1939 | 1,049 | 0.0507 |
| 2017 | 2017Generator Sets Composite | Generator Sets Composite | | 0.0527 | 0.2821 | 0.4052 | 0.0007 | 0.0216 | 61.0 | 0.0048 |
| 2017 | 2017Graders50 | Graders | 50 | 0.0743 | 0.2932 | 0.2387 | 0.0004 | 0.0176 | 27.5 | 0.0067 |
| 2017 | 2017Graders120 | Graders | 120 | 0.0928 | 0.5166 | 0.5753 | 0.0009 | 0.0447 | 75.0 | 0.0084 |
| 2017 | 2017Graders175 | Graders | 175 | 0.1135 | 0.7301 | 0.7781 | 0.0014 | 0.0429 | 124 | 0.0102 |
| 2017 | 2017Graders250 | Graders | 250 | 0.1180 | 0.3848 | 0.9383 | 0.0019 | 0.0321 | 172 | 0.0106 |
| 2017 | 2017Graders500 | Graders | 500 | 0.1497 | 0.5344 | 1.1139 | 0.0023 | 0.0400 | 229 | 0.0135 |
| 2017 | 2017Graders750 | Graders | 750 | 0.3187 | 1.1303 | 2.4323 | 0.0049 | 0.0862 | 486 | 0.0288 |
| 2017 | 2017Graders Composite | Graders Composite | | 0.1121 | 0.5844 | 0.8008 | 0.0015 | 0.0397 | 133 | 0.0101 |
| 2017 | 2017Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1712 | 0.6931 | 0.9973 | 0.0011 | 0.0834 | 93.7 | 0.0154 |
| 2017 | 2017Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1697 | 0.8122 | 1.1987 | 0.0015 | 0.0677 | 130 | 0.0153 |
| 2017 | 2017Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1344 | 0.4001 | 1.1003 | 0.0015 | 0.0446 | 130 | 0.0121 |
| 2017 | 2017Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.5434 | 2.2170 | 4.4309 | 0.0057 | 0.1765 | 568 | 0.0490 |
| 2017 | 2017Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.8220 | 3.4738 | 8.4378 | 0.0082 | 0.2696 | 814 | 0.0742 |
| 2017 | 2017Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1716 | 0.6906 | 1.3177 | 0.0017 | 0.0623 | 151 | 0.0155 |
| 2017 | 2017Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.1072 | 0.7547 | 0.6764 | 0.0014 | 0.0363 | 125 | 0.0097 |
| 2017 | 2017Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.1109 | 0.3608 | 0.7625 | 0.0019 | 0.0256 | 167 | 0.0100 |
| 2017 | 2017Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1753 | 0.5676 | 1.1034 | 0.0027 | 0.0397 | 272 | 0.0158 |
| 2017 | 2017Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2856 | 0.9204 | 1.8476 | 0.0044 | 0.0655 | 442 | 0.0258 |
| 2017 | 2017Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.4308 | 1.3660 | 4.6014 | 0.0063 | 0.1229 | 625 | 0.0389 |
| 2017 | 2017Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1712 | 0.5722 | 1.1851 | 0.0027 | 0.0407 | 260 | 0.0154 |
| 2017 | 2017Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2017 | 2017Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2017 | 2017Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0468 | 0.2392 | 0.2185 | 0.0004 | 0.0125 | 28.0 | 0.0042 |
| 2017 | 2017Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0671 | 0.5141 | 0.5013 | 0.0009 | 0.0329 | 80.9 | 0.0061 |
| 2017 | 2017Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0665 | 0.5860 | 0.5133 | 0.0012 | 0.0252 | 107 | 0.0060 |
| 2017 | 2017Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1181 | 0.4796 | 0.9136 | 0.0025 | 0.0311 | 254 | 0.0107 |
| 2017 | 2017Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0675 | 0.3568 | 0.5044 | 0.0013 | 0.0206 | 123 | 0.0061 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 2017Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2017 | 2017Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2017 | 2017Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0621 | 0.2377 | 0.1935 | 0.0003 | 0.0152 | 21.7 | 0.0056 |
| 2017 | 2017Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0811 | 0.4307 | 0.4956 | 0.0007 | 0.0404 | 62.0 | 0.0073 |
| 2017 | 2017Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0911 | 0.5665 | 0.6307 | 0.0011 | 0.0351 | 95.9 | 0.0082 |
| 2017 | 2017Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0936 | 0.2900 | 0.7778 | 0.0015 | 0.0249 | 136 | 0.0084 |
| 2017 | 2017Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1745 | 0.5443 | 1.3258 | 0.0026 | 0.0459 | 265 | 0.0157 |
| 2017 | 2017Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2894 | 0.8971 | 2.2570 | 0.0044 | 0.0770 | 437 | 0.0261 |
| 2017 | 2017Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.4068 | 1.2739 | 4.6403 | 0.0056 | 0.1274 | 560 | 0.0367 |
| 2017 | 2017Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1187 | 0.4650 | 0.9138 | 0.0016 | 0.0379 | 152 | 0.0107 |
| 2017 | 2017Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0860 | 0.3282 | 0.2689 | 0.0004 | 0.0211 | 30.3 | 0.0078 |
| 2017 | 2017Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0786 | 0.4192 | 0.4839 | 0.0007 | 0.0394 | 60.7 | 0.0071 |
| 2017 | 2017Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.1146 | 0.7173 | 0.8014 | 0.0014 | 0.0445 | 122 | 0.0103 |
| 2017 | 2017Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0988 | 0.3087 | 0.8309 | 0.0016 | 0.0266 | 145 | 0.0089 |
| 2017 | 2017Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1243 | 0.3915 | 0.9560 | 0.0019 | 0.0330 | 192 | 0.0112 |
| 2017 | 2017Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.5621 | 1.6821 | 6.1372 | 0.0073 | 0.1681 | 741 | 0.0507 |
| 2017 | 2017Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.1123 | 0.4544 | 0.8948 | 0.0015 | 0.0366 | 141 | 0.0101 |
| 2017 | 2017Pavers25 | Pavers | 25 | 0.0228 | 0.0771 | 0.1440 | 0.0002 | 0.0058 | 18.7 | 0.0021 |
| 2017 | 2017Pavers50 | Pavers | 50 | 0.1040 | 0.3262 | 0.2615 | 0.0004 | 0.0234 | 28.0 | 0.0094 |
| 2017 | 2017Pavers120 | Pavers | 120 | 0.1095 | 0.4895 | 0.6606 | 0.0008 | 0.0548 | 69.2 | 0.0099 |
| 2017 | 2017Pavers175 | Pavers | 175 | 0.1443 | 0.7653 | 1.0437 | 0.0014 | 0.0582 | 128 | 0.0130 |
| 2017 | 2017Pavers250 | Pavers | 250 | 0.1664 | 0.5174 | 1.4290 | 0.0022 | 0.0537 | 194 | 0.0150 |
| 2017 | 2017Pavers500 | Pavers | 500 | 0.1858 | 0.7239 | 1.5415 | 0.0023 | 0.0588 | 233 | 0.0168 |
| 2017 | 2017Pavers Composite | Pavers Composite | | 0.1193 | 0.5073 | 0.6672 | 0.0009 | 0.0453 | 77.9 | 0.0108 |
| 2017 | 2017Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2017 | 2017Paving Equipment50 | Paving Equipment | 50 | 0.0885 | 0.2760 | 0.2230 | 0.0003 | 0.0200 | 23.9 | 0.0080 |
| 2017 | 2017Paving Equipment120 | Paving Equipment | 120 | 0.0858 | 0.3834 | 0.5187 | 0.0006 | 0.0433 | 54.5 | 0.0077 |
| 2017 | 2017Paving Equipment175 | Paving Equipment | 175 | 0.1124 | 0.5987 | 0.8196 | 0.0011 | 0.0458 | 101 | 0.0101 |
| 2017 | 2017Paving Equipment250 | Paving Equipment | 250 | 0.1018 | 0.3178 | 0.8949 | 0.0014 | 0.0329 | 122 | 0.0092 |
| 2017 | 2017Paving Equipment Composite | Paving Equipment Composite | | 0.0910 | 0.4165 | 0.5965 | 0.0008 | 0.0404 | 68.9 | 0.0082 |
| 2017 | 2017Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2017 | 2017Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2017 | 2017Pressure Washers15 | Pressure Washers | 15 | 0.0060 | 0.0310 | 0.0419 | 0.0001 | 0.0022 | 4.9 | 0.0005 |
| 2017 | 2017Pressure Washers25 | Pressure Washers | 25 | 0.0096 | 0.0324 | 0.0596 | 0.0001 | 0.0030 | 7.1 | 0.0009 |
| 2017 | 2017Pressure Washers50 | Pressure Washers | 50 | 0.0195 | 0.0918 | 0.1098 | 0.0002 | 0.0061 | 14.3 | 0.0018 |
| 2017 | 2017Pressure Washers120 | Pressure Washers | 120 | 0.0191 | 0.1393 | 0.1659 | 0.0003 | 0.0100 | 24.1 | 0.0017 |
| 2017 | 2017Pressure Washers Composite | Pressure Washers Composite | | 0.0111 | 0.0570 | 0.0733 | 0.0001 | 0.0040 | 9.4 | 0.0010 |
| 2017 | 2017Pumps15 | Pumps | 15 | 0.0103 | 0.0471 | 0.0641 | 0.0001 | 0.0036 | 7.4 | 0.0009 |
| 2017 | 2017Pumps25 | Pumps | 25 | 0.0286 | 0.0883 | 0.1625 | 0.0002 | 0.0084 | 19.5 | 0.0026 |
| 2017 | 2017Pumps50 | Pumps | 50 | 0.0680 | 0.2744 | 0.2773 | 0.0004 | 0.0184 | 34.3 | 0.0061 |
| 2017 | 2017Pumps120 | Pumps | 120 | 0.0760 | 0.4802 | 0.5715 | 0.0009 | 0.0400 | 77.9 | 0.0069 |
| 2017 | 2017Pumps175 | Pumps | 175 | 0.0940 | 0.7342 | 0.8462 | 0.0016 | 0.0398 | 140 | 0.0085 |
| 2017 | 2017Pumps250 | Pumps | 250 | 0.0932 | 0.3841 | 1.0601 | 0.0023 | 0.0303 | 201 | 0.0084 |
| 2017 | 2017Pumps500 | Pumps | 500 | 0.1468 | 0.6478 | 1.6054 | 0.0034 | 0.0489 | 345 | 0.0132 |
| 2017 | 2017Pumps750 | Pumps | 750 | 0.2481 | 1.0709 | 2.7377 | 0.0057 | 0.0823 | 571 | 0.0224 |
| 2017 | 2017Pumps9999 | Pumps | 9999 | 0.7548 | 2.8273 | 10.4295 | 0.0136 | 0.2569 | 1,355 | 0.0681 |
| 2017 | 2017Pumps Composite | Pumps Composite | | 0.0508 | 0.2751 | 0.3560 | 0.0006 | 0.0214 | 49.6 | 0.0046 |
| 2017 | 2017Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2017 | 2017Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2017 | 2017Rollers50 | Rollers | 50 | 0.0729 | 0.2611 | 0.2245 | 0.0003 | 0.0174 | 26.0 | 0.0066 |
| 2017 | 2017Rollers120 | Rollers | 120 | 0.0736 | 0.3944 | 0.4749 | 0.0007 | 0.0378 | 59.0 | 0.0066 |
| 2017 | 2017Rollers175 | Rollers | 175 | 0.0964 | 0.6140 | 0.7248 | 0.0012 | 0.0393 | 108 | 0.0087 |
| 2017 | 2017Rollers250 | Rollers | 250 | 0.0985 | 0.3375 | 0.9035 | 0.0017 | 0.0302 | 153 | 0.0089 |
| 2017 | 2017Rollers500 | Rollers | 500 | 0.1323 | 0.5091 | 1.1463 | 0.0022 | 0.0401 | 219 | 0.0119 |
| 2017 | 2017Rollers Composite | Rollers Composite | | 0.0736 | 0.3913 | 0.4866 | 0.0008 | 0.0322 | 67.0 | 0.0066 |
| 2017 | 2017Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0743 | 0.3373 | 0.2846 | 0.0004 | 0.0190 | 33.9 | 0.0067 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 2017Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0660 | 0.4203 | 0.4341 | 0.0007 | 0.0319 | 62.4 | 0.0060 |
| 2017 | 2017Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0993 | 0.7233 | 0.6899 | 0.0014 | 0.0371 | 125 | 0.0090 |
| 2017 | 2017Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.1047 | 0.3544 | 0.8098 | 0.0019 | 0.0269 | 171 | 0.0094 |
| 2017 | 2017Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1514 | 0.5104 | 1.0707 | 0.0025 | 0.0383 | 257 | 0.0137 |
| 2017 | 2017Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0704 | 0.4522 | 0.4645 | 0.0008 | 0.0323 | 70.3 | 0.0064 |
| 2017 | 2017Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1763 | 0.8232 | 1.2239 | 0.0015 | 0.0692 | 129 | 0.0159 |
| 2017 | 2017Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1992 | 0.5845 | 1.5954 | 0.0021 | 0.0654 | 183 | 0.0180 |
| 2017 | 2017Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2660 | 1.0972 | 2.0893 | 0.0026 | 0.0849 | 265 | 0.0240 |
| 2017 | 2017Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.4016 | 1.6469 | 3.2071 | 0.0040 | 0.1289 | 399 | 0.0362 |
| 2017 | 2017Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.6276 | 2.6606 | 6.2665 | 0.0060 | 0.2034 | 592 | 0.0566 |
| 2017 | 2017Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2465 | 0.9300 | 1.9508 | 0.0025 | 0.0796 | 239 | 0.0222 |
| 2017 | 2017Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2017 | 2017Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0818 | 0.3270 | 0.2684 | 0.0004 | 0.0195 | 31.1 | 0.0074 |
| 2017 | 2017Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0714 | 0.4038 | 0.4460 | 0.0007 | 0.0346 | 58.9 | 0.0064 |
| 2017 | 2017Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0954 | 0.6234 | 0.6571 | 0.0012 | 0.0362 | 106 | 0.0086 |
| 2017 | 2017Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.1000 | 0.3290 | 0.7984 | 0.0017 | 0.0272 | 149 | 0.0090 |
| 2017 | 2017Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1514 | 0.5411 | 1.1288 | 0.0023 | 0.0405 | 237 | 0.0137 |
| 2017 | 2017Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.3121 | 1.1077 | 2.3876 | 0.0049 | 0.0844 | 486 | 0.0282 |
| 2017 | 2017Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.4149 | 1.4822 | 4.7146 | 0.0060 | 0.1302 | 594 | 0.0374 |
| 2017 | 2017Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0920 | 0.4510 | 0.6446 | 0.0012 | 0.0336 | 109 | 0.0083 |
| 2017 | 2017Scrapers120 | Scrapers | 120 | 0.1471 | 0.6728 | 0.8712 | 0.0011 | 0.0719 | 93.9 | 0.0133 |
| 2017 | 2017Scrapers175 | Scrapers | 175 | 0.1673 | 0.8975 | 1.1638 | 0.0017 | 0.0655 | 148 | 0.0151 |
| 2017 | 2017Scrapers250 | Scrapers | 250 | 0.1805 | 0.5495 | 1.4783 | 0.0024 | 0.0552 | 209 | 0.0163 |
| 2017 | 2017Scrapers500 | Scrapers | 500 | 0.2594 | 0.9602 | 2.0375 | 0.0032 | 0.0777 | 321 | 0.0234 |
| 2017 | 2017Scrapers750 | Scrapers | 750 | 0.4502 | 1.6557 | 3.6101 | 0.0056 | 0.1359 | 555 | 0.0406 |
| 2017 | 2017Scrapers Composite | Scrapers Composite | | 0.2257 | 0.8713 | 1.7483 | 0.0027 | 0.0716 | 262 | 0.0204 |
| 2017 | 2017Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2017 | 2017Signal Boards50 | Signal Boards | 50 | 0.0738 | 0.3047 | 0.2923 | 0.0005 | 0.0195 | 36.2 | 0.0067 |
| 2017 | 2017Signal Boards120 | Signal Boards | 120 | 0.0781 | 0.5033 | 0.5729 | 0.0009 | 0.0410 | 80.2 | 0.0070 |
| 2017 | 2017Signal Boards175 | Signal Boards | 175 | 0.1057 | 0.8280 | 0.8988 | 0.0017 | 0.0440 | 155 | 0.0095 |
| 2017 | 2017Signal Boards250 | Signal Boards | 250 | 0.1230 | 0.4919 | 1.2834 | 0.0029 | 0.0379 | 255 | 0.0111 |
| 2017 | 2017Signal Boards Composite | Signal Boards Composite | | 0.0151 | 0.0918 | 0.1098 | 0.0002 | 0.0055 | 16.7 | 0.0014 |
| 2017 | 2017Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0179 | 0.0588 | 0.1090 | 0.0002 | 0.0050 | 13.8 | 0.0016 |
| 2017 | 2017Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0288 | 0.2057 | 0.1865 | 0.0003 | 0.0079 | 25.5 | 0.0026 |
| 2017 | 2017Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0268 | 0.2686 | 0.2172 | 0.0005 | 0.0114 | 42.8 | 0.0024 |
| 2017 | 2017Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0274 | 0.2161 | 0.1912 | 0.0004 | 0.0088 | 30.3 | 0.0025 |
| 2017 | 2017Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0346 | 0.1270 | 0.1178 | 0.0002 | 0.0085 | 14.1 | 0.0031 |
| 2017 | 2017Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0722 | 0.4096 | 0.4995 | 0.0007 | 0.0368 | 63.8 | 0.0065 |
| 2017 | 2017Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0685 | 0.4685 | 0.5589 | 0.0010 | 0.0282 | 85.8 | 0.0062 |
| 2017 | 2017Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0780 | 0.2927 | 0.7732 | 0.0015 | 0.0253 | 135 | 0.0070 |
| 2017 | 2017Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1186 | 0.5248 | 1.1392 | 0.0022 | 0.0385 | 221 | 0.0107 |
| 2017 | 2017Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1888 | 0.8224 | 1.8408 | 0.0035 | 0.0614 | 347 | 0.0170 |
| 2017 | 2017Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0981 | 0.4333 | 0.8855 | 0.0017 | 0.0321 | 166 | 0.0088 |
| 2017 | 2017Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2017 | 2017Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2017 | 2017Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0581 | 0.3019 | 0.2627 | 0.0004 | 0.0158 | 31.6 | 0.0052 |
| 2017 | 2017Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0701 | 0.4996 | 0.4855 | 0.0009 | 0.0336 | 75.0 | 0.0063 |
| 2017 | 2017Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.1029 | 0.8018 | 0.7099 | 0.0016 | 0.0381 | 139 | 0.0093 |
| 2017 | 2017Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0936 | 0.3232 | 0.6970 | 0.0018 | 0.0230 | 162 | 0.0084 |
| 2017 | 2017Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0737 | 0.4962 | 0.4726 | 0.0009 | 0.0288 | 78.5 | 0.0067 |
| 2017 | 2017Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0192 | 0.0653 | 0.1213 | 0.0002 | 0.0047 | 15.9 | 0.0017 |
| 2017 | 2017Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0555 | 0.2889 | 0.2435 | 0.0004 | 0.0141 | 30.3 | 0.0050 |
| 2017 | 2017Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0477 | 0.3442 | 0.3216 | 0.0006 | 0.0217 | 51.7 | 0.0043 |
| 2017 | 2017Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0726 | 0.5847 | 0.4886 | 0.0011 | 0.0254 | 101 | 0.0066 |
| 2017 | 2017Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0968 | 0.3506 | 0.6887 | 0.0019 | 0.0229 | 172 | 0.0087 |
| 2017 | 2017Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1886 | 0.6859 | 1.2315 | 0.0039 | 0.0438 | 345 | 0.0170 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 2017Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2842 | 1.0286 | 1.9040 | 0.0058 | 0.0668 | 517 | 0.0256 |
| 2017 | 2017Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0559 | 0.3666 | 0.3681 | 0.0008 | 0.0222 | 66.8 | 0.0050 |
| 2017 | 2017Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2017 | 2017Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2017 | 2017Trenchers50 | Trenchers | 50 | 0.1222 | 0.3728 | 0.3051 | 0.0004 | 0.0274 | 32.9 | 0.0110 |
| 2017 | 2017Trenchers120 | Trenchers | 120 | 0.1018 | 0.4529 | 0.6266 | 0.0008 | 0.0514 | 64.9 | 0.0092 |
| 2017 | 2017Trenchers175 | Trenchers | 175 | 0.1590 | 0.8464 | 1.1893 | 0.0016 | 0.0653 | 144 | 0.0143 |
| 2017 | 2017Trenchers250 | Trenchers | 250 | 0.1883 | 0.6031 | 1.6715 | 0.0025 | 0.0635 | 223 | 0.0170 |
| 2017 | 2017Trenchers500 | Trenchers | 500 | 0.2433 | 1.0086 | 2.1048 | 0.0031 | 0.0805 | 311 | 0.0220 |
| 2017 | 2017Trenchers750 | Trenchers | 750 | 0.4610 | 1.8971 | 4.0616 | 0.0059 | 0.1535 | 587 | 0.0416 |
| 2017 | 2017Trenchers Composite | Trenchers Composite | | 0.1129 | 0.4422 | 0.5410 | 0.0007 | 0.0423 | 58.7 | 0.0102 |
| 2017 | 2017Welders15 | Welders | 15 | 0.0086 | 0.0394 | 0.0536 | 0.0001 | 0.0030 | 6.2 | 0.0008 |
| 2017 | 2017Welders25 | Welders | 25 | 0.0166 | 0.0511 | 0.0941 | 0.0001 | 0.0049 | 11.3 | 0.0015 |
| 2017 | 2017Welders50 | Welders | 50 | 0.0638 | 0.2408 | 0.2183 | 0.0003 | 0.0162 | 26.0 | 0.0058 |
| 2017 | 2017Welders120 | Welders | 120 | 0.0444 | 0.2559 | 0.3033 | 0.0005 | 0.0234 | 39.5 | 0.0040 |
| 2017 | 2017Welders175 | Welders | 175 | 0.0774 | 0.5404 | 0.6214 | 0.0011 | 0.0322 | 98.2 | 0.0070 |
| 2017 | 2017Welders250 | Welders | 250 | 0.0657 | 0.2384 | 0.6582 | 0.0013 | 0.0200 | 119 | 0.0059 |
| 2017 | 2017Welders500 | Welders | 500 | 0.0865 | 0.3263 | 0.8096 | 0.0016 | 0.0264 | 168 | 0.0078 |
| 2017 | 2017Welders Composite | Welders Composite | | 0.0434 | 0.1912 | 0.2054 | 0.0003 | 0.0150 | 25.6 | 0.0039 |
| 2018 | 2018Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2018 | 2018Aerial Lifts25 | Aerial Lifts | 25 | 0.0143 | 0.0468 | 0.0865 | 0.0001 | 0.0039 | 11.0 | 0.0013 |
| 2018 | 2018Aerial Lifts50 | Aerial Lifts | 50 | 0.0336 | 0.1506 | 0.1525 | 0.0003 | 0.0093 | 19.6 | 0.0030 |
| 2018 | 2018Aerial Lifts120 | Aerial Lifts | 120 | 0.0327 | 0.2319 | 0.2565 | 0.0004 | 0.0170 | 38.1 | 0.0029 |
| 2018 | 2018Aerial Lifts500 | Aerial Lifts | 500 | 0.0840 | 0.3899 | 0.8852 | 0.0021 | 0.0270 | 213 | 0.0076 |
| 2018 | 2018Aerial Lifts750 | Aerial Lifts | 750 | 0.1545 | 0.7049 | 1.6423 | 0.0039 | 0.0494 | 385 | 0.0139 |
| 2018 | 2018Aerial Lifts Composite | Aerial Lifts Composite | | 0.0322 | 0.1740 | 0.2152 | 0.0004 | 0.0119 | 34.7 | 0.0029 |
| 2018 | 2018Air Compressors15 | Air Compressors | 15 | 0.0098 | 0.0456 | 0.0608 | 0.0001 | 0.0033 | 7.2 | 0.0009 |
| 2018 | 2018Air Compressors25 | Air Compressors | 25 | 0.0207 | 0.0645 | 0.1187 | 0.0002 | 0.0060 | 14.4 | 0.0019 |
| 2018 | 2018Air Compressors50 | Air Compressors | 50 | 0.0518 | 0.2142 | 0.1848 | 0.0003 | 0.0131 | 22.3 | 0.0047 |
| 2018 | 2018Air Compressors120 | Air Compressors | 120 | 0.0504 | 0.3097 | 0.3370 | 0.0006 | 0.0255 | 47.0 | 0.0045 |
| 2018 | 2018Air Compressors175 | Air Compressors | 175 | 0.0685 | 0.4994 | 0.5069 | 0.0010 | 0.0268 | 88.5 | 0.0062 |
| 2018 | 2018Air Compressors250 | Air Compressors | 250 | 0.0747 | 0.2653 | 0.6529 | 0.0015 | 0.0206 | 131 | 0.0067 |
| 2018 | 2018Air Compressors500 | Air Compressors | 500 | 0.1262 | 0.4504 | 1.0161 | 0.0023 | 0.0345 | 232 | 0.0114 |
| 2018 | 2018Air Compressors750 | Air Compressors | 750 | 0.1960 | 0.6961 | 1.6134 | 0.0036 | 0.0540 | 358 | 0.0177 |
| 2018 | 2018Air Compressors1000 | Air Compressors | 1000 | 0.2958 | 1.0416 | 3.7257 | 0.0049 | 0.0965 | 486 | 0.0267 |
| 2018 | 2018Air Compressors Composite | Air Compressors Composite | | 0.0582 | 0.3130 | 0.3935 | 0.0007 | 0.0246 | 63.6 | 0.0052 |
| 2018 | 2018Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2018 | 2018Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2018 | 2018Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0204 | 0.2211 | 0.1897 | 0.0004 | 0.0034 | 31.0 | 0.0018 |
| 2018 | 2018Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0308 | 0.4665 | 0.2710 | 0.0009 | 0.0072 | 77.1 | 0.0028 |
| 2018 | 2018Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0475 | 0.7542 | 0.2910 | 0.0016 | 0.0092 | 141 | 0.0043 |
| 2018 | 2018Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0538 | 0.3426 | 0.2499 | 0.0021 | 0.0068 | 188 | 0.0049 |
| 2018 | 2018Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0887 | 0.5512 | 0.4035 | 0.0031 | 0.0112 | 311 | 0.0080 |
| 2018 | 2018Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1755 | 1.0891 | 0.8022 | 0.0062 | 0.0222 | 615 | 0.0158 |
| 2018 | 2018Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2789 | 1.6441 | 4.2095 | 0.0093 | 0.0723 | 928 | 0.0252 |
| 2018 | 2018Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0539 | 0.5011 | 0.4175 | 0.0017 | 0.0099 | 165 | 0.0049 |
| 2018 | 2018Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2018 | 2018Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0232 | 0.0754 | 0.1391 | 0.0002 | 0.0064 | 17.6 | 0.0021 |
| 2018 | 2018Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0087 | 0.0416 | 0.0538 | 0.0001 | 0.0022 | 7.2 | 0.0008 |
| 2018 | 2018Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2018 | 2018Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0549 | 0.2534 | 0.2388 | 0.0004 | 0.0148 | 30.2 | 0.0050 |
| 2018 | 2018Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0650 | 0.4661 | 0.4898 | 0.0009 | 0.0335 | 74.1 | 0.0059 |
| 2018 | 2018Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.1012 | 0.8661 | 0.8304 | 0.0018 | 0.0410 | 160 | 0.0091 |
| 2018 | 2018Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0605 | 0.3850 | 0.3959 | 0.0007 | 0.0261 | 58.5 | 0.0055 |
| 2018 | 2018Cranes50 | Cranes | 50 | 0.0646 | 0.2527 | 0.2019 | 0.0003 | 0.0151 | 23.2 | 0.0058 |
| 2018 | 2018Cranes120 | Cranes | 120 | 0.0639 | 0.3486 | 0.3857 | 0.0006 | 0.0306 | 50.1 | 0.0058 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 2018Cranes175 | Cranes | 175 | 0.0752 | 0.4766 | 0.5029 | 0.0009 | 0.0283 | 80.3 | 0.0068 |
| 2018 | 2018Cranes250 | Cranes | 250 | 0.0787 | 0.2521 | 0.6168 | 0.0013 | 0.0212 | 112 | 0.0071 |
| 2018 | 2018Cranes500 | Cranes | 500 | 0.1202 | 0.4085 | 0.8748 | 0.0018 | 0.0317 | 180 | 0.0108 |
| 2018 | 2018Cranes750 | Cranes | 750 | 0.2034 | 0.6869 | 1.5239 | 0.0030 | 0.0544 | 303 | 0.0184 |
| 2018 | 2018Cranes9999 | Cranes | 9999 | 0.7422 | 2.3933 | 7.8338 | 0.0098 | 0.2146 | 971 | 0.0670 |
| 2018 | 2018Cranes Composite | Cranes Composite | | 0.1012 | 0.4060 | 0.7908 | 0.0014 | 0.0318 | 129 | 0.0091 |
| 2018 | 2018Crawler Tractors50 | Crawler Tractors | 50 | 0.0813 | 0.2884 | 0.2240 | 0.0003 | 0.0181 | 24.9 | 0.0073 |
| 2018 | 2018Crawler Tractors120 | Crawler Tractors | 120 | 0.0945 | 0.4679 | 0.5589 | 0.0008 | 0.0448 | 65.8 | 0.0085 |
| 2018 | 2018Crawler Tractors175 | Crawler Tractors | 175 | 0.1270 | 0.7327 | 0.8534 | 0.0014 | 0.0479 | 121 | 0.0115 |
| 2018 | 2018Crawler Tractors250 | Crawler Tractors | 250 | 0.1333 | 0.4179 | 1.0430 | 0.0019 | 0.0385 | 166 | 0.0120 |
| 2018 | 2018Crawler Tractors500 | Crawler Tractors | 500 | 0.1959 | 0.7202 | 1.4625 | 0.0025 | 0.0554 | 259 | 0.0177 |
| 2018 | 2018Crawler Tractors750 | Crawler Tractors | 750 | 0.3529 | 1.2889 | 2.6916 | 0.0047 | 0.1006 | 465 | 0.0318 |
| 2018 | 2018Crawler Tractors1000 | Crawler Tractors | 1000 | 0.5380 | 2.0171 | 5.7362 | 0.0066 | 0.1663 | 658 | 0.0485 |
| 2018 | 2018Crawler Tractors Composite | Crawler Tractors Composite | | 0.1185 | 0.5387 | 0.7960 | 0.0013 | 0.0457 | 114 | 0.0107 |
| 2018 | 2018Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0949 | 0.4230 | 0.3607 | 0.0006 | 0.0241 | 44.0 | 0.0086 |
| 2018 | 2018Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0849 | 0.5506 | 0.5679 | 0.0010 | 0.0416 | 83.1 | 0.0077 |
| 2018 | 2018Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1258 | 0.9520 | 0.8975 | 0.0019 | 0.0475 | 167 | 0.0113 |
| 2018 | 2018Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1386 | 0.4932 | 1.1284 | 0.0028 | 0.0359 | 245 | 0.0125 |
| 2018 | 2018Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.2037 | 0.7231 | 1.5205 | 0.0037 | 0.0524 | 374 | 0.0184 |
| 2018 | 2018Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3193 | 1.1368 | 2.4441 | 0.0059 | 0.0824 | 589 | 0.0288 |
| 2018 | 2018Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.8312 | 2.7569 | 9.5902 | 0.0131 | 0.2467 | 1,308 | 0.0750 |
| 2018 | 2018Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1109 | 0.6328 | 0.7330 | 0.0015 | 0.0412 | 132 | 0.0100 |
| 2018 | 2018Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0584 | 0.0001 | 0.0023 | 7.6 | 0.0008 |
| 2018 | 2018Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0584 | 0.0001 | 0.0023 | 7.6 | 0.0008 |
| 2018 | 2018Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2018 | 2018Excavators50 | Excavators | 50 | 0.0468 | 0.2521 | 0.2002 | 0.0003 | 0.0111 | 25.0 | 0.0042 |
| 2018 | 2018Excavators120 | Excavators | 120 | 0.0693 | 0.5017 | 0.4425 | 0.0009 | 0.0289 | 73.6 | 0.0063 |
| 2018 | 2018Excavators175 | Excavators | 175 | 0.0824 | 0.6641 | 0.5069 | 0.0013 | 0.0264 | 112 | 0.0074 |
| 2018 | 2018Excavators250 | Excavators | 250 | 0.0933 | 0.3323 | 0.5984 | 0.0018 | 0.0202 | 159 | 0.0084 |
| 2018 | 2018Excavators500 | Excavators | 500 | 0.1339 | 0.4689 | 0.7881 | 0.0023 | 0.0284 | 234 | 0.0121 |
| 2018 | 2018Excavators750 | Excavators | 750 | 0.2224 | 0.7769 | 1.3381 | 0.0039 | 0.0476 | 387 | 0.0201 |
| 2018 | 2018Excavators Composite | Excavators Composite | | 0.0848 | 0.5160 | 0.5181 | 0.0013 | 0.0249 | 120 | 0.0077 |
| 2018 | 2018Forklifts50 | Forklifts | 50 | 0.0229 | 0.1440 | 0.1180 | 0.0002 | 0.0058 | 14.7 | 0.0021 |
| 2018 | 2018Forklifts120 | Forklifts | 120 | 0.0265 | 0.2118 | 0.1745 | 0.0004 | 0.0108 | 31.2 | 0.0024 |
| 2018 | 2018Forklifts175 | Forklifts | 175 | 0.0394 | 0.3322 | 0.2328 | 0.0006 | 0.0125 | 56.1 | 0.0036 |
| 2018 | 2018Forklifts250 | Forklifts | 250 | 0.0440 | 0.1559 | 0.2594 | 0.0009 | 0.0089 | 77.1 | 0.0040 |
| 2018 | 2018Forklifts500 | Forklifts | 500 | 0.0623 | 0.2131 | 0.3432 | 0.0011 | 0.0125 | 111 | 0.0056 |
| 2018 | 2018Forklifts Composite | Forklifts Composite | | 0.0372 | 0.2173 | 0.2186 | 0.0006 | 0.0101 | 54.4 | 0.0034 |
| 2018 | 2018Generator Sets15 | Generator Sets | 15 | 0.0123 | 0.0644 | 0.0852 | 0.0002 | 0.0043 | 10.2 | 0.0011 |
| 2018 | 2018Generator Sets25 | Generator Sets | 25 | 0.0231 | 0.0788 | 0.1449 | 0.0002 | 0.0070 | 17.6 | 0.0021 |
| 2018 | 2018Generator Sets50 | Generator Sets | 50 | 0.0491 | 0.2265 | 0.2357 | 0.0004 | 0.0138 | 30.6 | 0.0044 |
| 2018 | 2018Generator Sets120 | Generator Sets | 120 | 0.0642 | 0.4694 | 0.5181 | 0.0009 | 0.0333 | 77.9 | 0.0058 |
| 2018 | 2018Generator Sets175 | Generator Sets | 175 | 0.0808 | 0.7324 | 0.7528 | 0.0016 | 0.0337 | 142 | 0.0073 |
| 2018 | 2018Generator Sets250 | Generator Sets | 250 | 0.0857 | 0.3931 | 0.9756 | 0.0024 | 0.0274 | 213 | 0.0077 |
| 2018 | 2018Generator Sets500 | Generator Sets | 500 | 0.1264 | 0.6113 | 1.3836 | 0.0033 | 0.0415 | 337 | 0.0114 |
| 2018 | 2018Generator Sets750 | Generator Sets | 750 | 0.2080 | 0.9868 | 2.2918 | 0.0055 | 0.0679 | 544 | 0.0188 |
| 2018 | 2018Generator Sets9999 | Generator Sets | 9999 | 0.5230 | 2.0948 | 7.5356 | 0.0105 | 0.1778 | 1,049 | 0.0472 |
| 2018 | 2018Generator Sets Composite | Generator Sets Composite | | 0.0477 | 0.2786 | 0.3759 | 0.0007 | 0.0192 | 61.0 | 0.0043 |
| 2018 | 2018Graders50 | Graders | 50 | 0.0676 | 0.2868 | 0.2305 | 0.0004 | 0.0157 | 27.5 | 0.0061 |
| 2018 | 2018Graders120 | Graders | 120 | 0.0860 | 0.5138 | 0.5323 | 0.0009 | 0.0398 | 75.0 | 0.0078 |
| 2018 | 2018Graders175 | Graders | 175 | 0.1059 | 0.7294 | 0.7002 | 0.0014 | 0.0385 | 124 | 0.0096 |
| 2018 | 2018Graders250 | Graders | 250 | 0.1115 | 0.3778 | 0.8409 | 0.0019 | 0.0287 | 172 | 0.0101 |
| 2018 | 2018Graders500 | Graders | 500 | 0.1420 | 0.5194 | 0.9989 | 0.0023 | 0.0359 | 229 | 0.0128 |
| 2018 | 2018Graders750 | Graders | 750 | 0.3024 | 1.0988 | 2.1820 | 0.0049 | 0.0774 | 486 | 0.0273 |
| 2018 | 2018Graders Composite | Graders Composite | | 0.1049 | 0.5812 | 0.7217 | 0.0015 | 0.0355 | 133 | 0.0095 |
| 2018 | 2018Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1622 | 0.6879 | 0.9427 | 0.0011 | 0.0779 | 93.7 | 0.0146 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 2018Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1614 | 0.8085 | 1.1191 | 0.0015 | 0.0632 | 130 | 0.0146 |
| 2018 | 2018Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1275 | 0.3861 | 1.0244 | 0.0015 | 0.0411 | 130 | 0.0115 |
| 2018 | 2018Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.5173 | 2.0914 | 4.1264 | 0.0057 | 0.1633 | 568 | 0.0467 |
| 2018 | 2018Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.7842 | 3.2770 | 8.0820 | 0.0082 | 0.2526 | 814 | 0.0708 |
| 2018 | 2018Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1631 | 0.6762 | 1.2293 | 0.0017 | 0.0579 | 151 | 0.0147 |
| 2018 | 2018Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0983 | 0.7542 | 0.5947 | 0.0014 | 0.0314 | 125 | 0.0089 |
| 2018 | 2018Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.1042 | 0.3572 | 0.6660 | 0.0019 | 0.0225 | 167 | 0.0094 |
| 2018 | 2018Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1656 | 0.5578 | 0.9706 | 0.0027 | 0.0351 | 272 | 0.0149 |
| 2018 | 2018Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2693 | 0.9044 | 1.6152 | 0.0044 | 0.0577 | 442 | 0.0243 |
| 2018 | 2018Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.4058 | 1.3339 | 4.3394 | 0.0063 | 0.1110 | 625 | 0.0366 |
| 2018 | 2018Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1613 | 0.5634 | 1.0525 | 0.0027 | 0.0360 | 260 | 0.0146 |
| 2018 | 2018Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2018 | 2018Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2018 | 2018Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0412 | 0.2342 | 0.2102 | 0.0004 | 0.0108 | 28.0 | 0.0037 |
| 2018 | 2018Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0604 | 0.5116 | 0.4573 | 0.0009 | 0.0279 | 80.9 | 0.0054 |
| 2018 | 2018Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0608 | 0.5859 | 0.4478 | 0.0012 | 0.0218 | 107 | 0.0055 |
| 2018 | 2018Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1122 | 0.4743 | 0.8004 | 0.0025 | 0.0275 | 254 | 0.0101 |
| 2018 | 2018Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0633 | 0.3542 | 0.4478 | 0.0013 | 0.0181 | 123 | 0.0057 |
| 2018 | 2018Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2018 | 2018Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2018 | 2018Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0548 | 0.2314 | 0.1869 | 0.0003 | 0.0134 | 21.7 | 0.0049 |
| 2018 | 2018Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0732 | 0.4277 | 0.4544 | 0.0007 | 0.0350 | 62.0 | 0.0066 |
| 2018 | 2018Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0835 | 0.5664 | 0.5608 | 0.0011 | 0.0307 | 95.9 | 0.0075 |
| 2018 | 2018Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0884 | 0.2862 | 0.6866 | 0.0015 | 0.0221 | 136 | 0.0080 |
| 2018 | 2018Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1664 | 0.5336 | 1.1846 | 0.0026 | 0.0412 | 265 | 0.0150 |
| 2018 | 2018Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2755 | 0.8795 | 2.0057 | 0.0044 | 0.0689 | 437 | 0.0249 |
| 2018 | 2018Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.3866 | 1.2370 | 4.3716 | 0.0056 | 0.1169 | 560 | 0.0349 |
| 2018 | 2018Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1113 | 0.4591 | 0.8242 | 0.0016 | 0.0336 | 152 | 0.0100 |
| 2018 | 2018Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0758 | 0.3192 | 0.2598 | 0.0004 | 0.0186 | 30.3 | 0.0068 |
| 2018 | 2018Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0709 | 0.4162 | 0.4437 | 0.0007 | 0.0341 | 60.7 | 0.0064 |
| 2018 | 2018Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.1050 | 0.7171 | 0.7125 | 0.0014 | 0.0389 | 122 | 0.0095 |
| 2018 | 2018Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0934 | 0.3046 | 0.7336 | 0.0016 | 0.0237 | 145 | 0.0084 |
| 2018 | 2018Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1186 | 0.3838 | 0.8543 | 0.0019 | 0.0297 | 192 | 0.0107 |
| 2018 | 2018Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.5386 | 1.6331 | 5.7822 | 0.0073 | 0.1543 | 741 | 0.0486 |
| 2018 | 2018Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.1050 | 0.4495 | 0.8053 | 0.0015 | 0.0324 | 141 | 0.0095 |
| 2018 | 2018Pavers25 | Pavers | 25 | 0.0226 | 0.0769 | 0.1434 | 0.0002 | 0.0057 | 18.7 | 0.0020 |
| 2018 | 2018Pavers50 | Pavers | 50 | 0.0968 | 0.3188 | 0.2539 | 0.0004 | 0.0217 | 28.0 | 0.0087 |
| 2018 | 2018Pavers120 | Pavers | 120 | 0.1030 | 0.4862 | 0.6205 | 0.0008 | 0.0506 | 69.2 | 0.0093 |
| 2018 | 2018Pavers175 | Pavers | 175 | 0.1365 | 0.7632 | 0.9644 | 0.0014 | 0.0539 | 128 | 0.0123 |
| 2018 | 2018Pavers250 | Pavers | 250 | 0.1574 | 0.5000 | 1.3162 | 0.0022 | 0.0490 | 194 | 0.0142 |
| 2018 | 2018Pavers500 | Pavers | 500 | 0.1765 | 0.6885 | 1.4189 | 0.0023 | 0.0539 | 233 | 0.0159 |
| 2018 | 2018Pavers Composite | Pavers Composite | | 0.1121 | 0.5017 | 0.6241 | 0.0009 | 0.0419 | 77.9 | 0.0101 |
| 2018 | 2018Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2018 | 2018Paving Equipment50 | Paving Equipment | 50 | 0.0821 | 0.2696 | 0.2165 | 0.0003 | 0.0185 | 23.9 | 0.0074 |
| 2018 | 2018Paving Equipment120 | Paving Equipment | 120 | 0.0805 | 0.3809 | 0.4869 | 0.0006 | 0.0400 | 54.5 | 0.0073 |
| 2018 | 2018Paving Equipment175 | Paving Equipment | 175 | 0.1062 | 0.5971 | 0.7567 | 0.0011 | 0.0424 | 101 | 0.0096 |
| 2018 | 2018Paving Equipment250 | Paving Equipment | 250 | 0.0962 | 0.3068 | 0.8236 | 0.0014 | 0.0300 | 122 | 0.0087 |
| 2018 | 2018Paving Equipment Composite | Paving Equipment Composite | | 0.0857 | 0.4136 | 0.5558 | 0.0008 | 0.0374 | 68.9 | 0.0077 |
| 2018 | 2018Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2018 | 2018Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2018 | 2018Pressure Washers15 | Pressure Washers | 15 | 0.0059 | 0.0308 | 0.0408 | 0.0001 | 0.0021 | 4.9 | 0.0005 |
| 2018 | 2018Pressure Washers25 | Pressure Washers | 25 | 0.0094 | 0.0319 | 0.0587 | 0.0001 | 0.0028 | 7.1 | 0.0008 |
| 2018 | 2018Pressure Washers50 | Pressure Washers | 50 | 0.0170 | 0.0895 | 0.1059 | 0.0002 | 0.0054 | 14.3 | 0.0015 |
| 2018 | 2018Pressure Washers120 | Pressure Washers | 120 | 0.0167 | 0.1383 | 0.1528 | 0.0003 | 0.0087 | 24.1 | 0.0015 |
| 2018 | 2018Pressure Washers Composite | Pressure Washers Composite | | 0.0101 | 0.0562 | 0.0703 | 0.0001 | 0.0036 | 9.4 | 0.0009 |
| 2018 | 2018Pumps15 | Pumps | 15 | 0.0101 | 0.0468 | 0.0625 | 0.0001 | 0.0034 | 7.4 | 0.0009 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 2018Pumps25 | Pumps | 25 | 0.0279 | 0.0871 | 0.1601 | 0.0002 | 0.0080 | 19.5 | 0.0025 |
| 2018 | 2018Pumps50 | Pumps | 50 | 0.0599 | 0.2670 | 0.2677 | 0.0004 | 0.0164 | 34.3 | 0.0054 |
| 2018 | 2018Pumps120 | Pumps | 120 | 0.0676 | 0.4767 | 0.5260 | 0.0009 | 0.0350 | 77.9 | 0.0061 |
| 2018 | 2018Pumps175 | Pumps | 175 | 0.0845 | 0.7338 | 0.7548 | 0.0016 | 0.0350 | 140 | 0.0076 |
| 2018 | 2018Pumps250 | Pumps | 250 | 0.0866 | 0.3786 | 0.9399 | 0.0023 | 0.0271 | 201 | 0.0078 |
| 2018 | 2018Pumps500 | Pumps | 500 | 0.1387 | 0.6343 | 1.4367 | 0.0034 | 0.0442 | 345 | 0.0125 |
| 2018 | 2018Pumps750 | Pumps | 750 | 0.2330 | 1.0487 | 2.4376 | 0.0057 | 0.0741 | 571 | 0.0210 |
| 2018 | 2018Pumps9999 | Pumps | 9999 | 0.7050 | 2.7434 | 9.8509 | 0.0136 | 0.2358 | 1,355 | 0.0636 |
| 2018 | 2018Pumps Composite | Pumps Composite | | 0.0458 | 0.2722 | 0.3306 | 0.0006 | 0.0189 | 49.6 | 0.0041 |
| 2018 | 2018Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2018 | 2018Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2018 | 2018Rollers50 | Rollers | 50 | 0.0662 | 0.2547 | 0.2171 | 0.0003 | 0.0158 | 26.0 | 0.0060 |
| 2018 | 2018Rollers120 | Rollers | 120 | 0.0680 | 0.3919 | 0.4411 | 0.0007 | 0.0341 | 59.0 | 0.0061 |
| 2018 | 2018Rollers175 | Rollers | 175 | 0.0897 | 0.6130 | 0.6569 | 0.0012 | 0.0356 | 108 | 0.0081 |
| 2018 | 2018Rollers250 | Rollers | 250 | 0.0934 | 0.3306 | 0.8164 | 0.0017 | 0.0274 | 153 | 0.0084 |
| 2018 | 2018Rollers500 | Rollers | 500 | 0.1262 | 0.4902 | 1.0345 | 0.0022 | 0.0365 | 219 | 0.0114 |
| 2018 | 2018Rollers Composite | Rollers Composite | | 0.0683 | 0.3885 | 0.4485 | 0.0008 | 0.0291 | 67.0 | 0.0062 |
| 2018 | 2018Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0655 | 0.3294 | 0.2744 | 0.0004 | 0.0166 | 33.9 | 0.0059 |
| 2018 | 2018Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0596 | 0.4179 | 0.3967 | 0.0007 | 0.0273 | 62.4 | 0.0054 |
| 2018 | 2018Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0911 | 0.7231 | 0.6072 | 0.0014 | 0.0322 | 125 | 0.0082 |
| 2018 | 2018Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0988 | 0.3504 | 0.7075 | 0.0019 | 0.0237 | 171 | 0.0089 |
| 2018 | 2018Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1441 | 0.5029 | 0.9468 | 0.0025 | 0.0341 | 257 | 0.0130 |
| 2018 | 2018Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0638 | 0.4499 | 0.4219 | 0.0008 | 0.0277 | 70.3 | 0.0058 |
| 2018 | 2018Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1676 | 0.8191 | 1.1443 | 0.0015 | 0.0646 | 129 | 0.0151 |
| 2018 | 2018Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1890 | 0.5640 | 1.4879 | 0.0021 | 0.0605 | 183 | 0.0171 |
| 2018 | 2018Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2531 | 1.0338 | 1.9476 | 0.0026 | 0.0787 | 265 | 0.0228 |
| 2018 | 2018Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3821 | 1.5520 | 2.9917 | 0.0040 | 0.1195 | 399 | 0.0345 |
| 2018 | 2018Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.5986 | 2.5082 | 6.0072 | 0.0060 | 0.1906 | 592 | 0.0540 |
| 2018 | 2018Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2343 | 0.8819 | 1.8194 | 0.0025 | 0.0737 | 239 | 0.0211 |
| 2018 | 2018Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2018 | 2018Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0742 | 0.3198 | 0.2591 | 0.0004 | 0.0174 | 31.1 | 0.0067 |
| 2018 | 2018Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0660 | 0.4016 | 0.4121 | 0.0007 | 0.0307 | 58.9 | 0.0060 |
| 2018 | 2018Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0888 | 0.6227 | 0.5902 | 0.0012 | 0.0323 | 106 | 0.0080 |
| 2018 | 2018Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0946 | 0.3237 | 0.7142 | 0.0017 | 0.0244 | 149 | 0.0085 |
| 2018 | 2018Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1440 | 0.5256 | 1.0103 | 0.0023 | 0.0363 | 237 | 0.0130 |
| 2018 | 2018Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2966 | 1.0762 | 2.1374 | 0.0049 | 0.0758 | 486 | 0.0268 |
| 2018 | 2018Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.3912 | 1.4170 | 4.4558 | 0.0060 | 0.1188 | 594 | 0.0353 |
| 2018 | 2018Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0861 | 0.4470 | 0.5831 | 0.0012 | 0.0300 | 109 | 0.0078 |
| 2018 | 2018Scrapers120 | Scrapers | 120 | 0.1382 | 0.6686 | 0.8165 | 0.0011 | 0.0661 | 93.9 | 0.0125 |
| 2018 | 2018Scrapers175 | Scrapers | 175 | 0.1579 | 0.8954 | 1.0712 | 0.0017 | 0.0603 | 148 | 0.0142 |
| 2018 | 2018Scrapers250 | Scrapers | 250 | 0.1704 | 0.5324 | 1.3558 | 0.0024 | 0.0501 | 209 | 0.0154 |
| 2018 | 2018Scrapers500 | Scrapers | 500 | 0.2458 | 0.9165 | 1.8678 | 0.0032 | 0.0707 | 321 | 0.0222 |
| 2018 | 2018Scrapers750 | Scrapers | 750 | 0.4267 | 1.5807 | 3.3123 | 0.0056 | 0.1238 | 555 | 0.0385 |
| 2018 | 2018Scrapers Composite | Scrapers Composite | | 0.2135 | 0.8418 | 1.6042 | 0.0027 | 0.0653 | 262 | 0.0193 |
| 2018 | 2018Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2018 | 2018Signal Boards50 | Signal Boards | 50 | 0.0649 | 0.2966 | 0.2820 | 0.0005 | 0.0172 | 36.2 | 0.0059 |
| 2018 | 2018Signal Boards120 | Signal Boards | 120 | 0.0695 | 0.4999 | 0.5256 | 0.0009 | 0.0356 | 80.2 | 0.0063 |
| 2018 | 2018Signal Boards175 | Signal Boards | 175 | 0.0955 | 0.8276 | 0.7968 | 0.0017 | 0.0385 | 155 | 0.0086 |
| 2018 | 2018Signal Boards250 | Signal Boards | 250 | 0.1151 | 0.4857 | 1.1305 | 0.0029 | 0.0337 | 255 | 0.0104 |
| 2018 | 2018Signal Boards Composite | Signal Boards Composite | | 0.0143 | 0.0916 | 0.1029 | 0.0002 | 0.0050 | 16.7 | 0.0013 |
| 2018 | 2018Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0176 | 0.0582 | 0.1081 | 0.0002 | 0.0048 | 13.8 | 0.0016 |
| 2018 | 2018Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0263 | 0.2035 | 0.1787 | 0.0003 | 0.0065 | 25.5 | 0.0024 |
| 2018 | 2018Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0248 | 0.2680 | 0.1970 | 0.0005 | 0.0095 | 42.8 | 0.0022 |
| 2018 | 2018Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0253 | 0.2146 | 0.1799 | 0.0004 | 0.0074 | 30.3 | 0.0023 |
| 2018 | 2018Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0317 | 0.1242 | 0.1139 | 0.0002 | 0.0077 | 14.1 | 0.0029 |
| 2018 | 2018Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0668 | 0.4072 | 0.4651 | 0.0007 | 0.0334 | 63.8 | 0.0060 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 2018Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0637 | 0.4677 | 0.5082 | 0.0010 | 0.0257 | 85.8 | 0.0058 |
| 2018 | 2018Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0733 | 0.2858 | 0.7013 | 0.0015 | 0.0230 | 135 | 0.0066 |
| 2018 | 2018Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1120 | 0.5047 | 1.0316 | 0.0022 | 0.0350 | 221 | 0.0101 |
| 2018 | 2018Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1782 | 0.7911 | 1.6685 | 0.0035 | 0.0558 | 347 | 0.0161 |
| 2018 | 2018Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0923 | 0.4187 | 0.8043 | 0.0017 | 0.0291 | 166 | 0.0083 |
| 2018 | 2018Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2018 | 2018Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2018 | 2018Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0522 | 0.2974 | 0.2539 | 0.0004 | 0.0137 | 31.6 | 0.0047 |
| 2018 | 2018Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0647 | 0.4983 | 0.4442 | 0.0009 | 0.0291 | 75.0 | 0.0058 |
| 2018 | 2018Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0966 | 0.8030 | 0.6280 | 0.0016 | 0.0337 | 139 | 0.0087 |
| 2018 | 2018Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0894 | 0.3218 | 0.6073 | 0.0018 | 0.0204 | 162 | 0.0081 |
| 2018 | 2018Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0681 | 0.4946 | 0.4308 | 0.0009 | 0.0251 | 78.5 | 0.0061 |
| 2018 | 2018Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1211 | 0.0002 | 0.0046 | 15.9 | 0.0017 |
| 2018 | 2018Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0497 | 0.2839 | 0.2342 | 0.0004 | 0.0121 | 30.3 | 0.0045 |
| 2018 | 2018Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0435 | 0.3426 | 0.2937 | 0.0006 | 0.0184 | 51.7 | 0.0039 |
| 2018 | 2018Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0669 | 0.5845 | 0.4264 | 0.0011 | 0.0218 | 101 | 0.0060 |
| 2018 | 2018Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0914 | 0.3483 | 0.5964 | 0.0019 | 0.0200 | 172 | 0.0082 |
| 2018 | 2018Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1788 | 0.6771 | 1.0736 | 0.0039 | 0.0385 | 345 | 0.0161 |
| 2018 | 2018Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2691 | 1.0154 | 1.6525 | 0.0058 | 0.0585 | 517 | 0.0243 |
| 2018 | 2018Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0513 | 0.3647 | 0.3331 | 0.0008 | 0.0189 | 66.8 | 0.0046 |
| 2018 | 2018Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2018 | 2018Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2018 | 2018Trenchers50 | Trenchers | 50 | 0.1142 | 0.3647 | 0.2965 | 0.0004 | 0.0255 | 32.9 | 0.0103 |
| 2018 | 2018Trenchers120 | Trenchers | 120 | 0.0959 | 0.4498 | 0.5899 | 0.0008 | 0.0477 | 64.9 | 0.0087 |
| 2018 | 2018Trenchers175 | Trenchers | 175 | 0.1505 | 0.8436 | 1.1021 | 0.0016 | 0.0607 | 144 | 0.0136 |
| 2018 | 2018Trenchers250 | Trenchers | 250 | 0.1783 | 0.5823 | 1.5446 | 0.0025 | 0.0582 | 223 | 0.0161 |
| 2018 | 2018Trenchers500 | Trenchers | 500 | 0.2312 | 0.9564 | 1.9434 | 0.0031 | 0.0740 | 311 | 0.0209 |
| 2018 | 2018Trenchers750 | Trenchers | 750 | 0.4382 | 1.7994 | 3.7533 | 0.0059 | 0.1413 | 587 | 0.0395 |
| 2018 | 2018Trenchers Composite | Trenchers Composite | | 0.1061 | 0.4368 | 0.5117 | 0.0007 | 0.0393 | 58.7 | 0.0096 |
| 2018 | 2018Welders15 | Welders | 15 | 0.0084 | 0.0392 | 0.0522 | 0.0001 | 0.0028 | 6.2 | 0.0008 |
| 2018 | 2018Welders25 | Welders | 25 | 0.0161 | 0.0504 | 0.0927 | 0.0001 | 0.0047 | 11.3 | 0.0015 |
| 2018 | 2018Welders50 | Welders | 50 | 0.0563 | 0.2339 | 0.2108 | 0.0003 | 0.0144 | 26.0 | 0.0051 |
| 2018 | 2018Welders120 | Welders | 120 | 0.0398 | 0.2540 | 0.2787 | 0.0005 | 0.0205 | 39.5 | 0.0036 |
| 2018 | 2018Welders175 | Welders | 175 | 0.0703 | 0.5400 | 0.5536 | 0.0011 | 0.0283 | 98.2 | 0.0063 |
| 2018 | 2018Welders250 | Welders | 250 | 0.0617 | 0.2348 | 0.5828 | 0.0013 | 0.0179 | 119 | 0.0056 |
| 2018 | 2018Welders500 | Welders | 500 | 0.0825 | 0.3196 | 0.7244 | 0.0016 | 0.0239 | 168 | 0.0074 |
| 2018 | 2018Welders Composite | Welders Composite | | 0.0388 | 0.1876 | 0.1941 | 0.0003 | 0.0133 | 25.6 | 0.0035 |
| 2019 | 2019Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2019 | 2019Aerial Lifts25 | Aerial Lifts | 25 | 0.0140 | 0.0463 | 0.0859 | 0.0001 | 0.0037 | 11.0 | 0.0013 |
| 2019 | 2019Aerial Lifts50 | Aerial Lifts | 50 | 0.0293 | 0.1466 | 0.1471 | 0.0003 | 0.0081 | 19.6 | 0.0026 |
| 2019 | 2019Aerial Lifts120 | Aerial Lifts | 120 | 0.0288 | 0.2304 | 0.2354 | 0.0004 | 0.0146 | 38.1 | 0.0026 |
| 2019 | 2019Aerial Lifts500 | Aerial Lifts | 500 | 0.0794 | 0.3843 | 0.7878 | 0.0021 | 0.0243 | 213 | 0.0072 |
| 2019 | 2019Aerial Lifts750 | Aerial Lifts | 750 | 0.1455 | 0.6947 | 1.4582 | 0.0039 | 0.0444 | 385 | 0.0131 |
| 2019 | 2019Aerial Lifts Composite | Aerial Lifts Composite | | 0.0288 | 0.1715 | 0.2002 | 0.0004 | 0.0104 | 34.7 | 0.0026 |
| 2019 | 2019Air Compressors15 | Air Compressors | 15 | 0.0096 | 0.0453 | 0.0593 | 0.0001 | 0.0031 | 7.2 | 0.0009 |
| 2019 | 2019Air Compressors25 | Air Compressors | 25 | 0.0201 | 0.0638 | 0.1170 | 0.0002 | 0.0057 | 14.4 | 0.0018 |
| 2019 | 2019Air Compressors50 | Air Compressors | 50 | 0.0450 | 0.2078 | 0.1784 | 0.0003 | 0.0114 | 22.3 | 0.0041 |
| 2019 | 2019Air Compressors120 | Air Compressors | 120 | 0.0450 | 0.3075 | 0.3081 | 0.0006 | 0.0218 | 47.0 | 0.0041 |
| 2019 | 2019Air Compressors175 | Air Compressors | 175 | 0.0631 | 0.4991 | 0.4511 | 0.0010 | 0.0237 | 88.5 | 0.0057 |
| 2019 | 2019Air Compressors250 | Air Compressors | 250 | 0.0707 | 0.2619 | 0.5761 | 0.0015 | 0.0183 | 131 | 0.0064 |
| 2019 | 2019Air Compressors500 | Air Compressors | 500 | 0.1203 | 0.4440 | 0.9034 | 0.0023 | 0.0310 | 232 | 0.0109 |
| 2019 | 2019Air Compressors750 | Air Compressors | 750 | 0.1867 | 0.6861 | 1.4307 | 0.0036 | 0.0485 | 358 | 0.0168 |
| 2019 | 2019Air Compressors1000 | Air Compressors | 1000 | 0.2796 | 1.0167 | 3.5067 | 0.0049 | 0.0884 | 486 | 0.0252 |
| 2019 | 2019Air Compressors Composite | Air Compressors Composite | | 0.0526 | 0.3100 | 0.3577 | 0.0007 | 0.0213 | 63.6 | 0.0047 |
| 2019 | 2019Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2019 | 2019Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0045 | 16.0 | 0.0017 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 2019Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0199 | 0.2207 | 0.1818 | 0.0004 | 0.0026 | 31.0 | 0.0018 |
| 2019 | 2019Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0293 | 0.4663 | 0.2501 | 0.0009 | 0.0054 | 77.1 | 0.0026 |
| 2019 | 2019Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0436 | 0.7542 | 0.2336 | 0.0016 | 0.0068 | 141 | 0.0039 |
| 2019 | 2019Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0502 | 0.3426 | 0.2000 | 0.0021 | 0.0054 | 188 | 0.0045 |
| 2019 | 2019Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0829 | 0.5512 | 0.3237 | 0.0031 | 0.0088 | 311 | 0.0075 |
| 2019 | 2019Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1640 | 1.0891 | 0.6432 | 0.0062 | 0.0174 | 615 | 0.0148 |
| 2019 | 2019Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2597 | 1.6436 | 4.0728 | 0.0093 | 0.0615 | 928 | 0.0234 |
| 2019 | 2019Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0506 | 0.5009 | 0.3760 | 0.0017 | 0.0078 | 165 | 0.0046 |
| 2019 | 2019Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2019 | 2019Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0227 | 0.0747 | 0.1381 | 0.0002 | 0.0061 | 17.6 | 0.0021 |
| 2019 | 2019Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0086 | 0.0416 | 0.0537 | 0.0001 | 0.0022 | 7.2 | 0.0008 |
| 2019 | 2019Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2019 | 2019Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0478 | 0.2469 | 0.2306 | 0.0004 | 0.0129 | 30.2 | 0.0043 |
| 2019 | 2019Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0579 | 0.4633 | 0.4490 | 0.0009 | 0.0288 | 74.1 | 0.0052 |
| 2019 | 2019Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0931 | 0.8661 | 0.7382 | 0.0018 | 0.0363 | 160 | 0.0084 |
| 2019 | 2019Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0536 | 0.3812 | 0.3669 | 0.0007 | 0.0225 | 58.5 | 0.0048 |
| 2019 | 2019Cranes50 | Cranes | 50 | 0.0587 | 0.2472 | 0.1955 | 0.0003 | 0.0136 | 23.2 | 0.0053 |
| 2019 | 2019Cranes120 | Cranes | 120 | 0.0589 | 0.3465 | 0.3579 | 0.0006 | 0.0272 | 50.1 | 0.0053 |
| 2019 | 2019Cranes175 | Cranes | 175 | 0.0699 | 0.4760 | 0.4536 | 0.0009 | 0.0252 | 80.3 | 0.0063 |
| 2019 | 2019Cranes250 | Cranes | 250 | 0.0745 | 0.2478 | 0.5539 | 0.0013 | 0.0190 | 112 | 0.0067 |
| 2019 | 2019Cranes500 | Cranes | 500 | 0.1143 | 0.3951 | 0.7861 | 0.0018 | 0.0286 | 180 | 0.0103 |
| 2019 | 2019Cranes750 | Cranes | 750 | 0.1934 | 0.6644 | 1.3678 | 0.0030 | 0.0490 | 303 | 0.0174 |
| 2019 | 2019Cranes9999 | Cranes | 9999 | 0.7049 | 2.2802 | 7.4207 | 0.0098 | 0.1963 | 971 | 0.0636 |
| 2019 | 2019Cranes Composite | Cranes Composite | | 0.0954 | 0.3982 | 0.7236 | 0.0014 | 0.0286 | 129 | 0.0086 |
| 2019 | 2019Crawler Tractors50 | Crawler Tractors | 50 | 0.0754 | 0.2825 | 0.2172 | 0.0003 | 0.0165 | 24.9 | 0.0068 |
| 2019 | 2019Crawler Tractors120 | Crawler Tractors | 120 | 0.0887 | 0.4652 | 0.5230 | 0.0008 | 0.0408 | 65.8 | 0.0080 |
| 2019 | 2019Crawler Tractors175 | Crawler Tractors | 175 | 0.1194 | 0.7313 | 0.7820 | 0.0014 | 0.0437 | 121 | 0.0108 |
| 2019 | 2019Crawler Tractors250 | Crawler Tractors | 250 | 0.1258 | 0.4065 | 0.9524 | 0.0019 | 0.0349 | 166 | 0.0114 |
| 2019 | 2019Crawler Tractors500 | Crawler Tractors | 500 | 0.1856 | 0.6914 | 1.3353 | 0.0025 | 0.0502 | 259 | 0.0167 |
| 2019 | 2019Crawler Tractors750 | Crawler Tractors | 750 | 0.3343 | 1.2378 | 2.4593 | 0.0047 | 0.0913 | 465 | 0.0302 |
| 2019 | 2019Crawler Tractors1000 | Crawler Tractors | 1000 | 0.5101 | 1.9264 | 5.4669 | 0.0066 | 0.1540 | 658 | 0.0460 |
| 2019 | 2019Crawler Tractors Composite | Crawler Tractors Composite | | 0.1115 | 0.5319 | 0.7346 | 0.0013 | 0.0416 | 114 | 0.0101 |
| 2019 | 2019Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0825 | 0.4118 | 0.3482 | 0.0006 | 0.0209 | 44.0 | 0.0074 |
| 2019 | 2019Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0760 | 0.5471 | 0.5185 | 0.0010 | 0.0353 | 83.1 | 0.0069 |
| 2019 | 2019Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1161 | 0.9518 | 0.7948 | 0.0019 | 0.0417 | 167 | 0.0105 |
| 2019 | 2019Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1312 | 0.4883 | 0.9900 | 0.0028 | 0.0319 | 245 | 0.0118 |
| 2019 | 2019Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1943 | 0.7148 | 1.3454 | 0.0037 | 0.0468 | 374 | 0.0175 |
| 2019 | 2019Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.3049 | 1.1248 | 2.1610 | 0.0059 | 0.0737 | 589 | 0.0275 |
| 2019 | 2019Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.7943 | 2.7001 | 9.0361 | 0.0131 | 0.2254 | 1,308 | 0.0717 |
| 2019 | 2019Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.1011 | 0.6280 | 0.6619 | 0.0015 | 0.0356 | 132 | 0.0091 |
| 2019 | 2019Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0583 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2019 | 2019Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0583 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2019 | 2019Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2019 | 2019Excavators50 | Excavators | 50 | 0.0422 | 0.2480 | 0.1928 | 0.0003 | 0.0094 | 25.0 | 0.0038 |
| 2019 | 2019Excavators120 | Excavators | 120 | 0.0633 | 0.4996 | 0.4050 | 0.0009 | 0.0244 | 73.6 | 0.0057 |
| 2019 | 2019Excavators175 | Excavators | 175 | 0.0759 | 0.6638 | 0.4429 | 0.0013 | 0.0227 | 112 | 0.0068 |
| 2019 | 2019Excavators250 | Excavators | 250 | 0.0878 | 0.3298 | 0.5187 | 0.0018 | 0.0176 | 159 | 0.0079 |
| 2019 | 2019Excavators500 | Excavators | 500 | 0.1266 | 0.4632 | 0.6900 | 0.0023 | 0.0250 | 234 | 0.0114 |
| 2019 | 2019Excavators750 | Excavators | 750 | 0.2100 | 0.7674 | 1.1653 | 0.0039 | 0.0417 | 387 | 0.0189 |
| 2019 | 2019Excavators Composite | Excavators Composite | | 0.0787 | 0.5140 | 0.4575 | 0.0013 | 0.0214 | 120 | 0.0071 |
| 2019 | 2019Forklifts50 | Forklifts | 50 | 0.0207 | 0.1418 | 0.1131 | 0.0002 | 0.0047 | 14.7 | 0.0019 |
| 2019 | 2019Forklifts120 | Forklifts | 120 | 0.0243 | 0.2109 | 0.1572 | 0.0004 | 0.0089 | 31.2 | 0.0022 |
| 2019 | 2019Forklifts175 | Forklifts | 175 | 0.0364 | 0.3319 | 0.2037 | 0.0006 | 0.0105 | 56.1 | 0.0033 |
| 2019 | 2019Forklifts250 | Forklifts | 250 | 0.0412 | 0.1556 | 0.2222 | 0.0009 | 0.0075 | 77.1 | 0.0037 |
| 2019 | 2019Forklifts500 | Forklifts | 500 | 0.0586 | 0.2128 | 0.2968 | 0.0011 | 0.0106 | 111 | 0.0053 |
| 2019 | 2019Forklifts Composite | Forklifts Composite | | 0.0345 | 0.2166 | 0.1924 | 0.0006 | 0.0085 | 54.4 | 0.0031 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 2019Generator Sets15 | Generator Sets | 15 | 0.0119 | 0.0641 | 0.0832 | 0.0002 | 0.0041 | 10.2 | 0.0011 |
| 2019 | 2019Generator Sets25 | Generator Sets | 25 | 0.0228 | 0.0778 | 0.1428 | 0.0002 | 0.0067 | 17.6 | 0.0021 |
| 2019 | 2019Generator Sets50 | Generator Sets | 50 | 0.0428 | 0.2206 | 0.2274 | 0.0004 | 0.0121 | 30.6 | 0.0039 |
| 2019 | 2019Generator Sets120 | Generator Sets | 120 | 0.0564 | 0.4663 | 0.4757 | 0.0009 | 0.0287 | 77.9 | 0.0051 |
| 2019 | 2019Generator Sets175 | Generator Sets | 175 | 0.0734 | 0.7323 | 0.6719 | 0.0016 | 0.0299 | 142 | 0.0066 |
| 2019 | 2019Generator Sets250 | Generator Sets | 250 | 0.0798 | 0.3883 | 0.8633 | 0.0024 | 0.0245 | 213 | 0.0072 |
| 2019 | 2019Generator Sets500 | Generator Sets | 500 | 0.1192 | 0.6027 | 1.2312 | 0.0033 | 0.0373 | 337 | 0.0108 |
| 2019 | 2019Generator Sets750 | Generator Sets | 750 | 0.1955 | 0.9730 | 2.0345 | 0.0055 | 0.0609 | 544 | 0.0176 |
| 2019 | 2019Generator Sets9999 | Generator Sets | 9999 | 0.4857 | 2.0464 | 7.1075 | 0.0105 | 0.1624 | 1,049 | 0.0438 |
| 2019 | 2019Generator Sets Composite | Generator Sets Composite | | 0.0431 | 0.2755 | 0.3483 | 0.0007 | 0.0169 | 61.0 | 0.0039 |
| 2019 | 2019Graders50 | Graders | 50 | 0.0617 | 0.2812 | 0.2228 | 0.0004 | 0.0140 | 27.5 | 0.0056 |
| 2019 | 2019Graders120 | Graders | 120 | 0.0796 | 0.5112 | 0.4929 | 0.0009 | 0.0353 | 75.0 | 0.0072 |
| 2019 | 2019Graders175 | Graders | 175 | 0.0987 | 0.7288 | 0.6283 | 0.0014 | 0.0343 | 124 | 0.0089 |
| 2019 | 2019Graders250 | Graders | 250 | 0.1055 | 0.3726 | 0.7518 | 0.0019 | 0.0257 | 172 | 0.0095 |
| 2019 | 2019Graders500 | Graders | 500 | 0.1350 | 0.5072 | 0.8940 | 0.0023 | 0.0322 | 229 | 0.0122 |
| 2019 | 2019Graders750 | Graders | 750 | 0.2873 | 1.0731 | 1.9527 | 0.0049 | 0.0694 | 486 | 0.0259 |
| 2019 | 2019Graders Composite | Graders Composite | | 0.0982 | 0.5787 | 0.6490 | 0.0015 | 0.0316 | 133 | 0.0089 |
| 2019 | 2019Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1537 | 0.6832 | 0.8910 | 0.0011 | 0.0726 | 93.7 | 0.0139 |
| 2019 | 2019Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1533 | 0.8053 | 1.0433 | 0.0015 | 0.0588 | 130 | 0.0138 |
| 2019 | 2019Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1210 | 0.3732 | 0.9525 | 0.0015 | 0.0379 | 130 | 0.0109 |
| 2019 | 2019Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.4923 | 1.9813 | 3.8379 | 0.0057 | 0.1508 | 568 | 0.0444 |
| 2019 | 2019Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.7478 | 3.1026 | 7.7459 | 0.0082 | 0.2366 | 814 | 0.0675 |
| 2019 | 2019Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1549 | 0.6634 | 1.1454 | 0.0017 | 0.0537 | 151 | 0.0140 |
| 2019 | 2019Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0904 | 0.7539 | 0.5208 | 0.0014 | 0.0270 | 125 | 0.0082 |
| 2019 | 2019Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0981 | 0.3540 | 0.5797 | 0.0019 | 0.0198 | 167 | 0.0089 |
| 2019 | 2019Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1568 | 0.5502 | 0.8530 | 0.0027 | 0.0310 | 272 | 0.0142 |
| 2019 | 2019Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2547 | 0.8921 | 1.4118 | 0.0044 | 0.0507 | 442 | 0.0230 |
| 2019 | 2019Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.3824 | 1.3098 | 4.1038 | 0.0063 | 0.1001 | 625 | 0.0345 |
| 2019 | 2019Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1524 | 0.5565 | 0.9348 | 0.0027 | 0.0318 | 260 | 0.0137 |
| 2019 | 2019Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2019 | 2019Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2019 | 2019Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0363 | 0.2299 | 0.2025 | 0.0004 | 0.0092 | 28.0 | 0.0033 |
| 2019 | 2019Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0545 | 0.5095 | 0.4176 | 0.0009 | 0.0235 | 80.9 | 0.0049 |
| 2019 | 2019Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0562 | 0.5859 | 0.3912 | 0.0012 | 0.0189 | 107 | 0.0051 |
| 2019 | 2019Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1066 | 0.4705 | 0.6985 | 0.0025 | 0.0243 | 254 | 0.0096 |
| 2019 | 2019Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0596 | 0.3522 | 0.3972 | 0.0013 | 0.0159 | 123 | 0.0054 |
| 2019 | 2019Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2019 | 2019Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2019 | 2019Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0481 | 0.2255 | 0.1804 | 0.0003 | 0.0117 | 21.7 | 0.0043 |
| 2019 | 2019Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0658 | 0.4250 | 0.4154 | 0.0007 | 0.0298 | 62.0 | 0.0059 |
| 2019 | 2019Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0772 | 0.5666 | 0.4991 | 0.0011 | 0.0269 | 95.9 | 0.0070 |
| 2019 | 2019Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0836 | 0.2830 | 0.6051 | 0.0015 | 0.0196 | 136 | 0.0075 |
| 2019 | 2019Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1584 | 0.5265 | 1.0524 | 0.0026 | 0.0368 | 265 | 0.0143 |
| 2019 | 2019Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2620 | 0.8678 | 1.7772 | 0.0044 | 0.0614 | 437 | 0.0236 |
| 2019 | 2019Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.3666 | 1.2089 | 4.1118 | 0.0056 | 0.1068 | 560 | 0.0331 |
| 2019 | 2019Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.1044 | 0.4549 | 0.7419 | 0.0016 | 0.0297 | 152 | 0.0094 |
| 2019 | 2019Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0664 | 0.3109 | 0.2508 | 0.0004 | 0.0162 | 30.3 | 0.0060 |
| 2019 | 2019Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0637 | 0.4135 | 0.4056 | 0.0007 | 0.0291 | 60.7 | 0.0058 |
| 2019 | 2019Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0972 | 0.7172 | 0.6342 | 0.0014 | 0.0342 | 122 | 0.0088 |
| 2019 | 2019Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0883 | 0.3011 | 0.6467 | 0.0016 | 0.0209 | 145 | 0.0080 |
| 2019 | 2019Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1130 | 0.3786 | 0.7591 | 0.0019 | 0.0265 | 192 | 0.0102 |
| 2019 | 2019Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.5150 | 1.5956 | 5.4382 | 0.0073 | 0.1409 | 741 | 0.0465 |
| 2019 | 2019Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0983 | 0.4458 | 0.7239 | 0.0015 | 0.0286 | 141 | 0.0089 |
| 2019 | 2019Pavers25 | Pavers | 25 | 0.0226 | 0.0768 | 0.1430 | 0.0002 | 0.0056 | 18.7 | 0.0020 |
| 2019 | 2019Pavers50 | Pavers | 50 | 0.0899 | 0.3119 | 0.2467 | 0.0004 | 0.0200 | 28.0 | 0.0081 |
| 2019 | 2019Pavers120 | Pavers | 120 | 0.0969 | 0.4833 | 0.5827 | 0.0008 | 0.0466 | 69.2 | 0.0087 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 2019Pavers175 | Pavers | 175 | 0.1290 | 0.7615 | 0.8894 | 0.0014 | 0.0498 | 128 | 0.0116 |
| 2019 | 2019Pavers250 | Pavers | 250 | 0.1490 | 0.4846 | 1.2101 | 0.0022 | 0.0447 | 194 | 0.0134 |
| 2019 | 2019Pavers500 | Pavers | 500 | 0.1677 | 0.6576 | 1.3038 | 0.0023 | 0.0493 | 233 | 0.0151 |
| 2019 | 2019Pavers Composite | Pavers Composite | | 0.1053 | 0.4966 | 0.5833 | 0.0009 | 0.0386 | 77.9 | 0.0095 |
| 2019 | 2019Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2019 | 2019Paving Equipment50 | Paving Equipment | 50 | 0.0760 | 0.2634 | 0.2103 | 0.0003 | 0.0171 | 23.9 | 0.0069 |
| 2019 | 2019Paving Equipment120 | Paving Equipment | 120 | 0.0756 | 0.3785 | 0.4566 | 0.0006 | 0.0368 | 54.5 | 0.0068 |
| 2019 | 2019Paving Equipment175 | Paving Equipment | 175 | 0.1002 | 0.5958 | 0.6969 | 0.0011 | 0.0391 | 101 | 0.0090 |
| 2019 | 2019Paving Equipment250 | Paving Equipment | 250 | 0.0911 | 0.2974 | 0.7562 | 0.0014 | 0.0273 | 122 | 0.0082 |
| 2019 | 2019Paving Equipment Composite | Paving Equipment Composite | | 0.0806 | 0.4109 | 0.5172 | 0.0008 | 0.0344 | 68.9 | 0.0073 |
| 2019 | 2019Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2019 | 2019Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2019 | 2019Pressure Washers15 | Pressure Washers | 15 | 0.0057 | 0.0307 | 0.0399 | 0.0001 | 0.0019 | 4.9 | 0.0005 |
| 2019 | 2019Pressure Washers25 | Pressure Washers | 25 | 0.0092 | 0.0315 | 0.0579 | 0.0001 | 0.0027 | 7.1 | 0.0008 |
| 2019 | 2019Pressure Washers50 | Pressure Washers | 50 | 0.0146 | 0.0873 | 0.1021 | 0.0002 | 0.0047 | 14.3 | 0.0013 |
| 2019 | 2019Pressure Washers120 | Pressure Washers | 120 | 0.0145 | 0.1374 | 0.1404 | 0.0003 | 0.0075 | 24.1 | 0.0013 |
| 2019 | 2019Pressure Washers Composite | Pressure Washers Composite | | 0.0092 | 0.0554 | 0.0675 | 0.0001 | 0.0033 | 9.4 | 0.0008 |
| 2019 | 2019Pumps15 | Pumps | 15 | 0.0098 | 0.0466 | 0.0609 | 0.0001 | 0.0032 | 7.4 | 0.0009 |
| 2019 | 2019Pumps25 | Pumps | 25 | 0.0271 | 0.0860 | 0.1579 | 0.0002 | 0.0077 | 19.5 | 0.0024 |
| 2019 | 2019Pumps50 | Pumps | 50 | 0.0523 | 0.2600 | 0.2583 | 0.0004 | 0.0144 | 34.3 | 0.0047 |
| 2019 | 2019Pumps120 | Pumps | 120 | 0.0596 | 0.4736 | 0.4827 | 0.0009 | 0.0302 | 77.9 | 0.0054 |
| 2019 | 2019Pumps175 | Pumps | 175 | 0.0771 | 0.7336 | 0.6737 | 0.0016 | 0.0311 | 140 | 0.0070 |
| 2019 | 2019Pumps250 | Pumps | 250 | 0.0809 | 0.3738 | 0.8318 | 0.0023 | 0.0242 | 201 | 0.0073 |
| 2019 | 2019Pumps500 | Pumps | 500 | 0.1312 | 0.6252 | 1.2788 | 0.0034 | 0.0398 | 345 | 0.0118 |
| 2019 | 2019Pumps750 | Pumps | 750 | 0.2196 | 1.0336 | 2.1645 | 0.0057 | 0.0666 | 571 | 0.0198 |
| 2019 | 2019Pumps9999 | Pumps | 9999 | 0.6578 | 2.6790 | 9.2901 | 0.0136 | 0.2156 | 1,355 | 0.0593 |
| 2019 | 2019Pumps Composite | Pumps Composite | | 0.0412 | 0.2695 | 0.3068 | 0.0006 | 0.0166 | 49.6 | 0.0037 |
| 2019 | 2019Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2019 | 2019Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2019 | 2019Rollers50 | Rollers | 50 | 0.0600 | 0.2489 | 0.2103 | 0.0003 | 0.0143 | 26.0 | 0.0054 |
| 2019 | 2019Rollers120 | Rollers | 120 | 0.0626 | 0.3895 | 0.4094 | 0.0007 | 0.0305 | 59.0 | 0.0057 |
| 2019 | 2019Rollers175 | Rollers | 175 | 0.0834 | 0.6121 | 0.5929 | 0.0012 | 0.0320 | 108 | 0.0075 |
| 2019 | 2019Rollers250 | Rollers | 250 | 0.0886 | 0.3249 | 0.7347 | 0.0017 | 0.0248 | 153 | 0.0080 |
| 2019 | 2019Rollers500 | Rollers | 500 | 0.1205 | 0.4743 | 0.9309 | 0.0022 | 0.0331 | 219 | 0.0109 |
| 2019 | 2019Rollers Composite | Rollers Composite | | 0.0632 | 0.3859 | 0.4127 | 0.0008 | 0.0261 | 67.0 | 0.0057 |
| 2019 | 2019Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0577 | 0.3224 | 0.2646 | 0.0004 | 0.0143 | 33.9 | 0.0052 |
| 2019 | 2019Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0539 | 0.4158 | 0.3625 | 0.0007 | 0.0231 | 62.4 | 0.0049 |
| 2019 | 2019Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0844 | 0.7230 | 0.5350 | 0.0014 | 0.0281 | 125 | 0.0076 |
| 2019 | 2019Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0933 | 0.3470 | 0.6177 | 0.0019 | 0.0208 | 171 | 0.0084 |
| 2019 | 2019Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1368 | 0.4976 | 0.8334 | 0.0025 | 0.0302 | 257 | 0.0123 |
| 2019 | 2019Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0579 | 0.4479 | 0.3832 | 0.0008 | 0.0235 | 70.3 | 0.0052 |
| 2019 | 2019Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1591 | 0.8155 | 1.0684 | 0.0015 | 0.0602 | 129 | 0.0144 |
| 2019 | 2019Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1792 | 0.5451 | 1.3860 | 0.0021 | 0.0559 | 183 | 0.0162 |
| 2019 | 2019Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2407 | 0.9773 | 1.8134 | 0.0026 | 0.0728 | 265 | 0.0217 |
| 2019 | 2019Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3635 | 1.4676 | 2.7876 | 0.0040 | 0.1107 | 399 | 0.0328 |
| 2019 | 2019Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.5706 | 2.3715 | 5.7623 | 0.0060 | 0.1786 | 592 | 0.0515 |
| 2019 | 2019Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2227 | 0.8388 | 1.6948 | 0.0025 | 0.0682 | 239 | 0.0201 |
| 2019 | 2019Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2019 | 2019Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0675 | 0.3135 | 0.2504 | 0.0004 | 0.0155 | 31.1 | 0.0061 |
| 2019 | 2019Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0609 | 0.3995 | 0.3812 | 0.0007 | 0.0271 | 58.9 | 0.0055 |
| 2019 | 2019Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0825 | 0.6221 | 0.5283 | 0.0012 | 0.0287 | 106 | 0.0074 |
| 2019 | 2019Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0896 | 0.3194 | 0.6366 | 0.0017 | 0.0218 | 149 | 0.0081 |
| 2019 | 2019Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1369 | 0.5126 | 0.9018 | 0.0023 | 0.0326 | 237 | 0.0124 |
| 2019 | 2019Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2819 | 1.0497 | 1.9070 | 0.0049 | 0.0679 | 486 | 0.0254 |
| 2019 | 2019Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.3690 | 1.3618 | 4.2187 | 0.0060 | 0.1081 | 594 | 0.0333 |
| 2019 | 2019Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0805 | 0.4436 | 0.5265 | 0.0012 | 0.0266 | 109 | 0.0073 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 2019Scrapers120 | Scrapers | 120 | 0.1298 | 0.6648 | 0.7651 | 0.0011 | 0.0604 | 93.9 | 0.0117 |
| 2019 | 2019Scrapers175 | Scrapers | 175 | 0.1488 | 0.8936 | 0.9840 | 0.0017 | 0.0552 | 148 | 0.0134 |
| 2019 | 2019Scrapers250 | Scrapers | 250 | 0.1610 | 0.5173 | 1.2413 | 0.0024 | 0.0455 | 209 | 0.0145 |
| 2019 | 2019Scrapers500 | Scrapers | 500 | 0.2330 | 0.8785 | 1.7092 | 0.0032 | 0.0643 | 321 | 0.0210 |
| 2019 | 2019Scrapers750 | Scrapers | 750 | 0.4045 | 1.5154 | 3.0335 | 0.0056 | 0.1126 | 555 | 0.0365 |
| 2019 | 2019Scrapers Composite | Scrapers Composite | | 0.2021 | 0.8161 | 1.4693 | 0.0027 | 0.0594 | 262 | 0.0182 |
| 2019 | 2019Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2019 | 2019Signal Boards50 | Signal Boards | 50 | 0.0565 | 0.2890 | 0.2721 | 0.0005 | 0.0150 | 36.2 | 0.0051 |
| 2019 | 2019Signal Boards120 | Signal Boards | 120 | 0.0617 | 0.4968 | 0.4813 | 0.0009 | 0.0305 | 80.2 | 0.0056 |
| 2019 | 2019Signal Boards175 | Signal Boards | 175 | 0.0875 | 0.8275 | 0.7074 | 0.0017 | 0.0340 | 155 | 0.0079 |
| 2019 | 2019Signal Boards250 | Signal Boards | 250 | 0.1082 | 0.4806 | 0.9949 | 0.0029 | 0.0300 | 255 | 0.0098 |
| 2019 | 2019Signal Boards Composite | Signal Boards Composite | | 0.0135 | 0.0913 | 0.0967 | 0.0002 | 0.0046 | 16.7 | 0.0012 |
| 2019 | 2019Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0173 | 0.0578 | 0.1075 | 0.0002 | 0.0046 | 13.8 | 0.0016 |
| 2019 | 2019Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0245 | 0.2019 | 0.1717 | 0.0003 | 0.0053 | 25.5 | 0.0022 |
| 2019 | 2019Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0232 | 0.2676 | 0.1796 | 0.0005 | 0.0079 | 42.8 | 0.0021 |
| 2019 | 2019Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0236 | 0.2134 | 0.1700 | 0.0004 | 0.0061 | 30.3 | 0.0021 |
| 2019 | 2019Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0290 | 0.1215 | 0.1103 | 0.0002 | 0.0070 | 14.1 | 0.0026 |
| 2019 | 2019Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0617 | 0.4049 | 0.4331 | 0.0007 | 0.0302 | 63.8 | 0.0056 |
| 2019 | 2019Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0592 | 0.4670 | 0.4609 | 0.0010 | 0.0233 | 85.8 | 0.0053 |
| 2019 | 2019Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0691 | 0.2801 | 0.6343 | 0.0015 | 0.0208 | 135 | 0.0062 |
| 2019 | 2019Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1061 | 0.4875 | 0.9319 | 0.0022 | 0.0317 | 221 | 0.0096 |
| 2019 | 2019Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1686 | 0.7643 | 1.5081 | 0.0035 | 0.0507 | 347 | 0.0152 |
| 2019 | 2019Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0871 | 0.4061 | 0.7289 | 0.0017 | 0.0264 | 166 | 0.0079 |
| 2019 | 2019Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2019 | 2019Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2019 | 2019Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0474 | 0.2937 | 0.2454 | 0.0004 | 0.0117 | 31.6 | 0.0043 |
| 2019 | 2019Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0600 | 0.4973 | 0.4064 | 0.0009 | 0.0250 | 75.0 | 0.0054 |
| 2019 | 2019Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0904 | 0.8041 | 0.5513 | 0.0016 | 0.0295 | 139 | 0.0082 |
| 2019 | 2019Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0850 | 0.3207 | 0.5231 | 0.0018 | 0.0178 | 162 | 0.0077 |
| 2019 | 2019Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0632 | 0.4933 | 0.3919 | 0.0009 | 0.0217 | 78.5 | 0.0057 |
| 2019 | 2019Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1210 | 0.0002 | 0.0046 | 15.9 | 0.0017 |
| 2019 | 2019Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0448 | 0.2796 | 0.2257 | 0.0004 | 0.0103 | 30.3 | 0.0040 |
| 2019 | 2019Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0398 | 0.3413 | 0.2687 | 0.0006 | 0.0154 | 51.7 | 0.0036 |
| 2019 | 2019Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0617 | 0.5843 | 0.3708 | 0.0011 | 0.0187 | 101 | 0.0056 |
| 2019 | 2019Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0861 | 0.3462 | 0.5143 | 0.0019 | 0.0174 | 172 | 0.0078 |
| 2019 | 2019Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1694 | 0.6700 | 0.9349 | 0.0039 | 0.0337 | 345 | 0.0153 |
| 2019 | 2019Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2545 | 1.0047 | 1.4302 | 0.0058 | 0.0510 | 517 | 0.0230 |
| 2019 | 2019Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0472 | 0.3630 | 0.3019 | 0.0008 | 0.0160 | 66.8 | 0.0043 |
| 2019 | 2019Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2019 | 2019Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2019 | 2019Trenchers50 | Trenchers | 50 | 0.1064 | 0.3569 | 0.2883 | 0.0004 | 0.0236 | 32.9 | 0.0096 |
| 2019 | 2019Trenchers120 | Trenchers | 120 | 0.0903 | 0.4470 | 0.5551 | 0.0008 | 0.0442 | 64.9 | 0.0081 |
| 2019 | 2019Trenchers175 | Trenchers | 175 | 0.1424 | 0.8413 | 1.0194 | 0.0016 | 0.0563 | 144 | 0.0128 |
| 2019 | 2019Trenchers250 | Trenchers | 250 | 0.1688 | 0.5637 | 1.4248 | 0.0025 | 0.0533 | 223 | 0.0152 |
| 2019 | 2019Trenchers500 | Trenchers | 500 | 0.2199 | 0.9107 | 1.7915 | 0.0031 | 0.0680 | 311 | 0.0198 |
| 2019 | 2019Trenchers750 | Trenchers | 750 | 0.4166 | 1.7139 | 3.4627 | 0.0059 | 0.1298 | 587 | 0.0376 |
| 2019 | 2019Trenchers Composite | Trenchers Composite | | 0.0995 | 0.4317 | 0.4838 | 0.0007 | 0.0364 | 58.7 | 0.0090 |
| 2019 | 2019Welders15 | Welders | 15 | 0.0082 | 0.0390 | 0.0509 | 0.0001 | 0.0027 | 6.2 | 0.0007 |
| 2019 | 2019Welders25 | Welders | 25 | 0.0157 | 0.0498 | 0.0914 | 0.0001 | 0.0044 | 11.3 | 0.0014 |
| 2019 | 2019Welders50 | Welders | 50 | 0.0490 | 0.2271 | 0.2035 | 0.0003 | 0.0126 | 26.0 | 0.0044 |
| 2019 | 2019Welders120 | Welders | 120 | 0.0354 | 0.2522 | 0.2552 | 0.0005 | 0.0176 | 39.5 | 0.0032 |
| 2019 | 2019Welders175 | Welders | 175 | 0.0646 | 0.5398 | 0.4934 | 0.0011 | 0.0251 | 98.2 | 0.0058 |
| 2019 | 2019Welders250 | Welders | 250 | 0.0582 | 0.2319 | 0.5150 | 0.0013 | 0.0159 | 119 | 0.0053 |
| 2019 | 2019Welders500 | Welders | 500 | 0.0786 | 0.3149 | 0.6445 | 0.0016 | 0.0215 | 168 | 0.0071 |
| 2019 | 2019Welders Composite | Welders Composite | | 0.0344 | 0.1843 | 0.1832 | 0.0003 | 0.0117 | 25.6 | 0.0031 |
| 2020 | 2020Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 2020Aerial Lifts25 | Aerial Lifts | 25 | 0.0138 | 0.0459 | 0.0854 | 0.0001 | 0.0035 | 11.0 | 0.0012 |
| 2020 | 2020Aerial Lifts50 | Aerial Lifts | 50 | 0.0261 | 0.1436 | 0.1422 | 0.0003 | 0.0071 | 19.6 | 0.0024 |
| 2020 | 2020Aerial Lifts120 | Aerial Lifts | 120 | 0.0259 | 0.2292 | 0.2166 | 0.0004 | 0.0127 | 38.1 | 0.0023 |
| 2020 | 2020Aerial Lifts500 | Aerial Lifts | 500 | 0.0751 | 0.3804 | 0.6959 | 0.0021 | 0.0217 | 213 | 0.0068 |
| 2020 | 2020Aerial Lifts750 | Aerial Lifts | 750 | 0.1373 | 0.6877 | 1.2876 | 0.0039 | 0.0396 | 385 | 0.0124 |
| 2020 | 2020Aerial Lifts Composite | Aerial Lifts Composite | | 0.0261 | 0.1696 | 0.1866 | 0.0004 | 0.0092 | 34.7 | 0.0024 |
| 2020 | 2020Air Compressors15 | Air Compressors | 15 | 0.0093 | 0.0451 | 0.0579 | 0.0001 | 0.0029 | 7.2 | 0.0008 |
| 2020 | 2020Air Compressors25 | Air Compressors | 25 | 0.0196 | 0.0630 | 0.1155 | 0.0002 | 0.0054 | 14.4 | 0.0018 |
| 2020 | 2020Air Compressors50 | Air Compressors | 50 | 0.0398 | 0.2030 | 0.1725 | 0.0003 | 0.0099 | 22.3 | 0.0036 |
| 2020 | 2020Air Compressors120 | Air Compressors | 120 | 0.0408 | 0.3058 | 0.2826 | 0.0006 | 0.0188 | 47.0 | 0.0037 |
| 2020 | 2020Air Compressors175 | Air Compressors | 175 | 0.0587 | 0.4989 | 0.4013 | 0.0010 | 0.0210 | 88.5 | 0.0053 |
| 2020 | 2020Air Compressors250 | Air Compressors | 250 | 0.0669 | 0.2592 | 0.5067 | 0.0015 | 0.0163 | 131 | 0.0060 |
| 2020 | 2020Air Compressors500 | Air Compressors | 500 | 0.1146 | 0.4395 | 0.7970 | 0.0023 | 0.0276 | 232 | 0.0103 |
| 2020 | 2020Air Compressors750 | Air Compressors | 750 | 0.1777 | 0.6792 | 1.2615 | 0.0036 | 0.0432 | 358 | 0.0160 |
| 2020 | 2020Air Compressors1000 | Air Compressors | 1000 | 0.2641 | 0.9959 | 3.2946 | 0.0049 | 0.0804 | 486 | 0.0238 |
| 2020 | 2020Air Compressors Composite | Air Compressors Composite | | 0.0483 | 0.3077 | 0.3255 | 0.0007 | 0.0185 | 63.6 | 0.0044 |
| 2020 | 2020Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2020 | 2020Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2020 | 2020Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0196 | 0.2205 | 0.1756 | 0.0004 | 0.0020 | 31.0 | 0.0018 |
| 2020 | 2020Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0280 | 0.4662 | 0.2329 | 0.0009 | 0.0040 | 77.1 | 0.0025 |
| 2020 | 2020Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0402 | 0.7542 | 0.1862 | 0.0016 | 0.0051 | 141 | 0.0036 |
| 2020 | 2020Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0474 | 0.3426 | 0.1617 | 0.0021 | 0.0044 | 188 | 0.0043 |
| 2020 | 2020Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0784 | 0.5512 | 0.2622 | 0.0031 | 0.0072 | 311 | 0.0071 |
| 2020 | 2020Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1549 | 1.0891 | 0.5202 | 0.0062 | 0.0143 | 615 | 0.0140 |
| 2020 | 2020Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2442 | 1.6437 | 3.9853 | 0.0093 | 0.0530 | 928 | 0.0220 |
| 2020 | 2020Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0480 | 0.5008 | 0.3439 | 0.0017 | 0.0062 | 165 | 0.0043 |
| 2020 | 2020Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2020 | 2020Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0223 | 0.0741 | 0.1372 | 0.0002 | 0.0058 | 17.6 | 0.0020 |
| 2020 | 2020Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0086 | 0.0415 | 0.0536 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2020 | 2020Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2020 | 2020Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0424 | 0.2420 | 0.2231 | 0.0004 | 0.0113 | 30.2 | 0.0038 |
| 2020 | 2020Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0524 | 0.4613 | 0.4128 | 0.0009 | 0.0249 | 74.1 | 0.0047 |
| 2020 | 2020Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0865 | 0.8662 | 0.6554 | 0.0018 | 0.0323 | 160 | 0.0078 |
| 2020 | 2020Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0484 | 0.3783 | 0.3410 | 0.0007 | 0.0196 | 58.5 | 0.0044 |
| 2020 | 2020Cranes50 | Cranes | 50 | 0.0532 | 0.2423 | 0.1894 | 0.0003 | 0.0121 | 23.2 | 0.0048 |
| 2020 | 2020Cranes120 | Cranes | 120 | 0.0542 | 0.3446 | 0.3317 | 0.0006 | 0.0240 | 50.1 | 0.0049 |
| 2020 | 2020Cranes175 | Cranes | 175 | 0.0648 | 0.4754 | 0.4071 | 0.0009 | 0.0223 | 80.3 | 0.0058 |
| 2020 | 2020Cranes250 | Cranes | 250 | 0.0704 | 0.2440 | 0.4949 | 0.0013 | 0.0170 | 112 | 0.0064 |
| 2020 | 2020Cranes500 | Cranes | 500 | 0.1087 | 0.3839 | 0.7047 | 0.0018 | 0.0257 | 180 | 0.0098 |
| 2020 | 2020Cranes750 | Cranes | 750 | 0.1837 | 0.6455 | 1.2225 | 0.0030 | 0.0439 | 303 | 0.0166 |
| 2020 | 2020Cranes9999 | Cranes | 9999 | 0.6702 | 2.1934 | 7.0436 | 0.0098 | 0.1797 | 971 | 0.0605 |
| 2020 | 2020Cranes Composite | Cranes Composite | | 0.0898 | 0.3917 | 0.6610 | 0.0014 | 0.0256 | 129 | 0.0081 |
| 2020 | 2020Crawler Tractors50 | Crawler Tractors | 50 | 0.0699 | 0.2771 | 0.2107 | 0.0003 | 0.0150 | 24.9 | 0.0063 |
| 2020 | 2020Crawler Tractors120 | Crawler Tractors | 120 | 0.0831 | 0.4628 | 0.4896 | 0.0008 | 0.0371 | 65.8 | 0.0075 |
| 2020 | 2020Crawler Tractors175 | Crawler Tractors | 175 | 0.1123 | 0.7302 | 0.7150 | 0.0014 | 0.0398 | 121 | 0.0101 |
| 2020 | 2020Crawler Tractors250 | Crawler Tractors | 250 | 0.1188 | 0.3966 | 0.8681 | 0.0019 | 0.0315 | 166 | 0.0107 |
| 2020 | 2020Crawler Tractors500 | Crawler Tractors | 500 | 0.1759 | 0.6665 | 1.2170 | 0.0025 | 0.0455 | 259 | 0.0159 |
| 2020 | 2020Crawler Tractors750 | Crawler Tractors | 750 | 0.3168 | 1.1935 | 2.2429 | 0.0047 | 0.0828 | 465 | 0.0286 |
| 2020 | 2020Crawler Tractors1000 | Crawler Tractors | 1000 | 0.4836 | 1.8458 | 5.2162 | 0.0066 | 0.1425 | 658 | 0.0436 |
| 2020 | 2020Crawler Tractors Composite | Crawler Tractors Composite | | 0.1049 | 0.5260 | 0.6772 | 0.0013 | 0.0378 | 114 | 0.0095 |
| 2020 | 2020Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0734 | 0.4036 | 0.3367 | 0.0006 | 0.0181 | 44.0 | 0.0066 |
| 2020 | 2020Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0692 | 0.5446 | 0.4754 | 0.0010 | 0.0302 | 83.1 | 0.0062 |
| 2020 | 2020Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1083 | 0.9519 | 0.7042 | 0.0019 | 0.0368 | 167 | 0.0098 |
| 2020 | 2020Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1245 | 0.4844 | 0.8670 | 0.0028 | 0.0282 | 245 | 0.0112 |
| 2020 | 2020Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1852 | 0.7092 | 1.1829 | 0.0037 | 0.0416 | 374 | 0.0167 |
| 2020 | 2020Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2912 | 1.1167 | 1.9026 | 0.0059 | 0.0655 | 589 | 0.0263 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 2020Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.7584 | 2.6528 | 8.5119 | 0.0131 | 0.2049 | 1,308 | 0.0684 |
| 2020 | 2020Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0934 | 0.6247 | 0.5983 | 0.0015 | 0.0310 | 132 | 0.0084 |
| 2020 | 2020Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0582 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2020 | 2020Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0582 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2020 | 2020Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2020 | 2020Excavators50 | Excavators | 50 | 0.0384 | 0.2446 | 0.1862 | 0.0003 | 0.0080 | 25.0 | 0.0035 |
| 2020 | 2020Excavators120 | Excavators | 120 | 0.0583 | 0.4979 | 0.3717 | 0.0009 | 0.0206 | 73.6 | 0.0053 |
| 2020 | 2020Excavators175 | Excavators | 175 | 0.0703 | 0.6637 | 0.3868 | 0.0013 | 0.0195 | 112 | 0.0063 |
| 2020 | 2020Excavators250 | Excavators | 250 | 0.0828 | 0.3276 | 0.4493 | 0.0018 | 0.0154 | 159 | 0.0075 |
| 2020 | 2020Excavators500 | Excavators | 500 | 0.1198 | 0.4591 | 0.6028 | 0.0023 | 0.0219 | 234 | 0.0108 |
| 2020 | 2020Excavators750 | Excavators | 750 | 0.1987 | 0.7606 | 1.0153 | 0.0039 | 0.0365 | 387 | 0.0179 |
| 2020 | 2020Excavators Composite | Excavators Composite | | 0.0733 | 0.5124 | 0.4042 | 0.0013 | 0.0184 | 120 | 0.0066 |
| 2020 | 2020Forklifts50 | Forklifts | 50 | 0.0191 | 0.1400 | 0.1084 | 0.0002 | 0.0039 | 14.7 | 0.0017 |
| 2020 | 2020Forklifts120 | Forklifts | 120 | 0.0225 | 0.2102 | 0.1443 | 0.0004 | 0.0074 | 31.2 | 0.0020 |
| 2020 | 2020Forklifts175 | Forklifts | 175 | 0.0336 | 0.3315 | 0.1772 | 0.0006 | 0.0087 | 56.1 | 0.0030 |
| 2020 | 2020Forklifts250 | Forklifts | 250 | 0.0385 | 0.1554 | 0.1887 | 0.0009 | 0.0062 | 77.1 | 0.0035 |
| 2020 | 2020Forklifts500 | Forklifts | 500 | 0.0548 | 0.2126 | 0.2528 | 0.0011 | 0.0088 | 111 | 0.0049 |
| 2020 | 2020Forklifts Composite | Forklifts Composite | | 0.0320 | 0.2160 | 0.1691 | 0.0006 | 0.0070 | 54.4 | 0.0029 |
| 2020 | 2020Generator Sets15 | Generator Sets | 15 | 0.0116 | 0.0638 | 0.0814 | 0.0002 | 0.0038 | 10.2 | 0.0011 |
| 2020 | 2020Generator Sets25 | Generator Sets | 25 | 0.0224 | 0.0769 | 0.1410 | 0.0002 | 0.0064 | 17.6 | 0.0020 |
| 2020 | 2020Generator Sets50 | Generator Sets | 50 | 0.0379 | 0.2161 | 0.2199 | 0.0004 | 0.0106 | 30.6 | 0.0034 |
| 2020 | 2020Generator Sets120 | Generator Sets | 120 | 0.0506 | 0.4641 | 0.4378 | 0.0009 | 0.0250 | 77.9 | 0.0046 |
| 2020 | 2020Generator Sets175 | Generator Sets | 175 | 0.0676 | 0.7323 | 0.5990 | 0.0016 | 0.0266 | 142 | 0.0061 |
| 2020 | 2020Generator Sets250 | Generator Sets | 250 | 0.0747 | 0.3844 | 0.7614 | 0.0024 | 0.0218 | 213 | 0.0067 |
| 2020 | 2020Generator Sets500 | Generator Sets | 500 | 0.1125 | 0.5968 | 1.0874 | 0.0033 | 0.0333 | 337 | 0.0102 |
| 2020 | 2020Generator Sets750 | Generator Sets | 750 | 0.1842 | 0.9634 | 1.7962 | 0.0055 | 0.0544 | 544 | 0.0166 |
| 2020 | 2020Generator Sets9999 | Generator Sets | 9999 | 0.4502 | 2.0059 | 6.6947 | 0.0105 | 0.1476 | 1,049 | 0.0406 |
| 2020 | 2020Generator Sets Composite | Generator Sets Composite | | 0.0395 | 0.2732 | 0.3232 | 0.0007 | 0.0150 | 61.0 | 0.0036 |
| 2020 | 2020Graders50 | Graders | 50 | 0.0563 | 0.2762 | 0.2156 | 0.0004 | 0.0124 | 27.5 | 0.0051 |
| 2020 | 2020Graders120 | Graders | 120 | 0.0738 | 0.5090 | 0.4568 | 0.0009 | 0.0311 | 75.0 | 0.0067 |
| 2020 | 2020Graders175 | Graders | 175 | 0.0918 | 0.7282 | 0.5622 | 0.0014 | 0.0303 | 124 | 0.0083 |
| 2020 | 2020Graders250 | Graders | 250 | 0.0999 | 0.3683 | 0.6701 | 0.0019 | 0.0230 | 172 | 0.0090 |
| 2020 | 2020Graders500 | Graders | 500 | 0.1284 | 0.4966 | 0.7982 | 0.0023 | 0.0288 | 229 | 0.0116 |
| 2020 | 2020Graders750 | Graders | 750 | 0.2731 | 1.0508 | 1.7425 | 0.0049 | 0.0621 | 486 | 0.0246 |
| 2020 | 2020Graders Composite | Graders Composite | | 0.0919 | 0.5765 | 0.5823 | 0.0015 | 0.0280 | 133 | 0.0083 |
| 2020 | 2020Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1455 | 0.6789 | 0.8421 | 0.0011 | 0.0674 | 93.7 | 0.0131 |
| 2020 | 2020Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1455 | 0.8025 | 0.9712 | 0.0015 | 0.0547 | 130 | 0.0131 |
| 2020 | 2020Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1147 | 0.3614 | 0.8843 | 0.0015 | 0.0348 | 130 | 0.0103 |
| 2020 | 2020Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.4683 | 1.8825 | 3.5643 | 0.0057 | 0.1391 | 568 | 0.0423 |
| 2020 | 2020Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.7129 | 2.9445 | 7.4279 | 0.0082 | 0.2214 | 814 | 0.0643 |
| 2020 | 2020Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1470 | 0.6517 | 1.0657 | 0.0017 | 0.0497 | 151 | 0.0133 |
| 2020 | 2020Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0837 | 0.7538 | 0.4564 | 0.0014 | 0.0234 | 125 | 0.0076 |
| 2020 | 2020Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0927 | 0.3514 | 0.5042 | 0.0019 | 0.0173 | 167 | 0.0084 |
| 2020 | 2020Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1488 | 0.5446 | 0.7481 | 0.0027 | 0.0273 | 272 | 0.0134 |
| 2020 | 2020Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2416 | 0.8831 | 1.2347 | 0.0044 | 0.0446 | 442 | 0.0218 |
| 2020 | 2020Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.3613 | 1.2913 | 3.8920 | 0.0063 | 0.0903 | 625 | 0.0326 |
| 2020 | 2020Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1443 | 0.5514 | 0.8306 | 0.0027 | 0.0280 | 260 | 0.0130 |
| 2020 | 2020Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2020 | 2020Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2020 | 2020Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0328 | 0.2267 | 0.1956 | 0.0004 | 0.0078 | 28.0 | 0.0030 |
| 2020 | 2020Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0501 | 0.5080 | 0.3835 | 0.0009 | 0.0199 | 80.9 | 0.0045 |
| 2020 | 2020Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0524 | 0.5859 | 0.3414 | 0.0012 | 0.0164 | 107 | 0.0047 |
| 2020 | 2020Other Construction Equipment500 | Other Construction Equipment | 500 | 0.1012 | 0.4676 | 0.6065 | 0.0025 | 0.0212 | 254 | 0.0091 |
| 2020 | 2020Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0563 | 0.3508 | 0.3519 | 0.0013 | 0.0139 | 122 | 0.0051 |
| 2020 | 2020Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2020 | 2020Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 2020Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0431 | 0.2211 | 0.1744 | 0.0003 | 0.0101 | 21.7 | 0.0039 |
| 2020 | 2020Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0602 | 0.4232 | 0.3810 | 0.0007 | 0.0256 | 62.0 | 0.0054 |
| 2020 | 2020Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0721 | 0.5668 | 0.4439 | 0.0011 | 0.0237 | 95.9 | 0.0065 |
| 2020 | 2020Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0791 | 0.2804 | 0.5318 | 0.0015 | 0.0173 | 136 | 0.0071 |
| 2020 | 2020Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1506 | 0.5217 | 0.9276 | 0.0026 | 0.0326 | 265 | 0.0136 |
| 2020 | 2020Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2490 | 0.8599 | 1.5657 | 0.0044 | 0.0543 | 437 | 0.0225 |
| 2020 | 2020Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.3467 | 1.1855 | 3.8628 | 0.0056 | 0.0969 | 560 | 0.0313 |
| 2020 | 2020Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0983 | 0.4517 | 0.6661 | 0.0016 | 0.0262 | 152 | 0.0089 |
| 2020 | 2020Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0595 | 0.3049 | 0.2425 | 0.0004 | 0.0141 | 30.3 | 0.0054 |
| 2020 | 2020Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0583 | 0.4117 | 0.3720 | 0.0007 | 0.0250 | 60.7 | 0.0053 |
| 2020 | 2020Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0907 | 0.7176 | 0.5642 | 0.0014 | 0.0301 | 122 | 0.0082 |
| 2020 | 2020Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0836 | 0.2984 | 0.5684 | 0.0016 | 0.0185 | 145 | 0.0075 |
| 2020 | 2020Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1074 | 0.3752 | 0.6692 | 0.0019 | 0.0235 | 192 | 0.0097 |
| 2020 | 2020Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.4910 | 1.5647 | 5.1082 | 0.0073 | 0.1280 | 741 | 0.0443 |
| 2020 | 2020Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0924 | 0.4429 | 0.6500 | 0.0015 | 0.0252 | 141 | 0.0083 |
| 2020 | 2020Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1427 | 0.0002 | 0.0055 | 18.7 | 0.0020 |
| 2020 | 2020Pavers50 | Pavers | 50 | 0.0834 | 0.3055 | 0.2398 | 0.0004 | 0.0184 | 28.0 | 0.0075 |
| 2020 | 2020Pavers120 | Pavers | 120 | 0.0910 | 0.4805 | 0.5471 | 0.0008 | 0.0428 | 69.2 | 0.0082 |
| 2020 | 2020Pavers175 | Pavers | 175 | 0.1217 | 0.7599 | 0.8187 | 0.0014 | 0.0459 | 128 | 0.0110 |
| 2020 | 2020Pavers250 | Pavers | 250 | 0.1411 | 0.4713 | 1.1106 | 0.0022 | 0.0407 | 194 | 0.0127 |
| 2020 | 2020Pavers500 | Pavers | 500 | 0.1595 | 0.6305 | 1.1959 | 0.0023 | 0.0450 | 233 | 0.0144 |
| 2020 | 2020Pavers Composite | Pavers Composite | | 0.0989 | 0.4920 | 0.5450 | 0.0009 | 0.0355 | 77.9 | 0.0089 |
| 2020 | 2020Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2020 | 2020Paving Equipment50 | Paving Equipment | 50 | 0.0702 | 0.2577 | 0.2043 | 0.0003 | 0.0157 | 23.9 | 0.0063 |
| 2020 | 2020Paving Equipment120 | Paving Equipment | 120 | 0.0708 | 0.3762 | 0.4280 | 0.0006 | 0.0337 | 54.5 | 0.0064 |
| 2020 | 2020Paving Equipment175 | Paving Equipment | 175 | 0.0944 | 0.5945 | 0.6403 | 0.0011 | 0.0360 | 101 | 0.0085 |
| 2020 | 2020Paving Equipment250 | Paving Equipment | 250 | 0.0864 | 0.2894 | 0.6928 | 0.0014 | 0.0249 | 122 | 0.0078 |
| 2020 | 2020Paving Equipment Composite | Paving Equipment Composite | | 0.0757 | 0.4084 | 0.4807 | 0.0008 | 0.0315 | 68.9 | 0.0068 |
| 2020 | 2020Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2020 | 2020Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2020 | 2020Pressure Washers15 | Pressure Washers | 15 | 0.0056 | 0.0305 | 0.0390 | 0.0001 | 0.0018 | 4.9 | 0.0005 |
| 2020 | 2020Pressure Washers25 | Pressure Washers | 25 | 0.0091 | 0.0312 | 0.0572 | 0.0001 | 0.0026 | 7.1 | 0.0008 |
| 2020 | 2020Pressure Washers50 | Pressure Washers | 50 | 0.0128 | 0.0856 | 0.0986 | 0.0002 | 0.0041 | 14.3 | 0.0012 |
| 2020 | 2020Pressure Washers120 | Pressure Washers | 120 | 0.0128 | 0.1367 | 0.1293 | 0.0003 | 0.0065 | 24.1 | 0.0012 |
| 2020 | 2020Pressure Washers Composite | Pressure Washers Composite | | 0.0085 | 0.0549 | 0.0650 | 0.0001 | 0.0030 | 9.4 | 0.0008 |
| 2020 | 2020Pumps15 | Pumps | 15 | 0.0096 | 0.0464 | 0.0595 | 0.0001 | 0.0030 | 7.4 | 0.0009 |
| 2020 | 2020Pumps25 | Pumps | 25 | 0.0265 | 0.0850 | 0.1558 | 0.0002 | 0.0073 | 19.5 | 0.0024 |
| 2020 | 2020Pumps50 | Pumps | 50 | 0.0465 | 0.2546 | 0.2497 | 0.0004 | 0.0126 | 34.3 | 0.0042 |
| 2020 | 2020Pumps120 | Pumps | 120 | 0.0537 | 0.4713 | 0.4442 | 0.0009 | 0.0263 | 77.9 | 0.0048 |
| 2020 | 2020Pumps175 | Pumps | 175 | 0.0712 | 0.7336 | 0.6007 | 0.0016 | 0.0277 | 140 | 0.0064 |
| 2020 | 2020Pumps250 | Pumps | 250 | 0.0760 | 0.3700 | 0.7338 | 0.0023 | 0.0215 | 201 | 0.0069 |
| 2020 | 2020Pumps500 | Pumps | 500 | 0.1241 | 0.6189 | 1.1297 | 0.0034 | 0.0355 | 345 | 0.0112 |
| 2020 | 2020Pumps750 | Pumps | 750 | 0.2075 | 1.0232 | 1.9114 | 0.0057 | 0.0594 | 571 | 0.0187 |
| 2020 | 2020Pumps9999 | Pumps | 9999 | 0.6127 | 2.6255 | 8.7489 | 0.0136 | 0.1961 | 1,355 | 0.0553 |
| 2020 | 2020Pumps Composite | Pumps Composite | | 0.0376 | 0.2674 | 0.2854 | 0.0006 | 0.0147 | 49.6 | 0.0034 |
| 2020 | 2020Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2020 | 2020Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2020 | 2020Rollers50 | Rollers | 50 | 0.0543 | 0.2436 | 0.2039 | 0.0003 | 0.0128 | 26.0 | 0.0049 |
| 2020 | 2020Rollers120 | Rollers | 120 | 0.0576 | 0.3873 | 0.3799 | 0.0007 | 0.0270 | 59.0 | 0.0052 |
| 2020 | 2020Rollers175 | Rollers | 175 | 0.0774 | 0.6114 | 0.5331 | 0.0012 | 0.0286 | 108 | 0.0070 |
| 2020 | 2020Rollers250 | Rollers | 250 | 0.0842 | 0.3201 | 0.6581 | 0.0017 | 0.0223 | 153 | 0.0076 |
| 2020 | 2020Rollers500 | Rollers | 500 | 0.1151 | 0.4607 | 0.8354 | 0.0022 | 0.0299 | 219 | 0.0104 |
| 2020 | 2020Rollers Composite | Rollers Composite | | 0.0584 | 0.3837 | 0.3793 | 0.0008 | 0.0232 | 67.0 | 0.0053 |
| 2020 | 2020Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0520 | 0.3171 | 0.2556 | 0.0004 | 0.0122 | 33.9 | 0.0047 |
| 2020 | 2020Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0495 | 0.4142 | 0.3326 | 0.0007 | 0.0197 | 62.4 | 0.0045 |
| 2020 | 2020Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0788 | 0.7229 | 0.4710 | 0.0014 | 0.0245 | 125 | 0.0071 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 2020Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0881 | 0.3442 | 0.5378 | 0.0019 | 0.0182 | 171 | 0.0079 |
| 2020 | 2020Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1296 | 0.4936 | 0.7287 | 0.0025 | 0.0265 | 257 | 0.0117 |
| 2020 | 2020Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0533 | 0.4464 | 0.3494 | 0.0008 | 0.0201 | 70.3 | 0.0048 |
| 2020 | 2020Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1509 | 0.8124 | 0.9962 | 0.0015 | 0.0561 | 129 | 0.0136 |
| 2020 | 2020Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1701 | 0.5279 | 1.2898 | 0.0021 | 0.0516 | 183 | 0.0153 |
| 2020 | 2020Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2291 | 0.9276 | 1.6868 | 0.0026 | 0.0673 | 265 | 0.0207 |
| 2020 | 2020Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3461 | 1.3934 | 2.5948 | 0.0040 | 0.1024 | 399 | 0.0312 |
| 2020 | 2020Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.5438 | 2.2500 | 5.5311 | 0.0060 | 0.1672 | 592 | 0.0491 |
| 2020 | 2020Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2118 | 0.8006 | 1.5773 | 0.0025 | 0.0630 | 239 | 0.0191 |
| 2020 | 2020Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2020 | 2020Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0615 | 0.3080 | 0.2424 | 0.0004 | 0.0137 | 31.1 | 0.0055 |
| 2020 | 2020Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0563 | 0.3977 | 0.3529 | 0.0007 | 0.0237 | 58.9 | 0.0051 |
| 2020 | 2020Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0767 | 0.6215 | 0.4713 | 0.0012 | 0.0253 | 106 | 0.0069 |
| 2020 | 2020Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0848 | 0.3159 | 0.5655 | 0.0017 | 0.0194 | 149 | 0.0077 |
| 2020 | 2020Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1302 | 0.5016 | 0.8032 | 0.0023 | 0.0291 | 237 | 0.0118 |
| 2020 | 2020Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2680 | 1.0271 | 1.6958 | 0.0049 | 0.0606 | 486 | 0.0242 |
| 2020 | 2020Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.3484 | 1.3166 | 4.0040 | 0.0060 | 0.0983 | 594 | 0.0314 |
| 2020 | 2020Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0753 | 0.4406 | 0.4747 | 0.0012 | 0.0235 | 109 | 0.0068 |
| 2020 | 2020Scrapers120 | Scrapers | 120 | 0.1218 | 0.6612 | 0.7170 | 0.0011 | 0.0551 | 93.9 | 0.0110 |
| 2020 | 2020Scrapers175 | Scrapers | 175 | 0.1400 | 0.8921 | 0.9020 | 0.0017 | 0.0505 | 148 | 0.0126 |
| 2020 | 2020Scrapers250 | Scrapers | 250 | 0.1522 | 0.5044 | 1.1344 | 0.0024 | 0.0412 | 209 | 0.0137 |
| 2020 | 2020Scrapers500 | Scrapers | 500 | 0.2211 | 0.8455 | 1.5615 | 0.0032 | 0.0584 | 321 | 0.0200 |
| 2020 | 2020Scrapers750 | Scrapers | 750 | 0.3839 | 1.4588 | 2.7734 | 0.0056 | 0.1024 | 555 | 0.0346 |
| 2020 | 2020Scrapers Composite | Scrapers Composite | | 0.1914 | 0.7938 | 1.3434 | 0.0027 | 0.0541 | 262 | 0.0173 |
| 2020 | 2020Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2020 | 2020Signal Boards50 | Signal Boards | 50 | 0.0502 | 0.2833 | 0.2631 | 0.0005 | 0.0131 | 36.2 | 0.0045 |
| 2020 | 2020Signal Boards120 | Signal Boards | 120 | 0.0558 | 0.4946 | 0.4424 | 0.0009 | 0.0264 | 80.2 | 0.0050 |
| 2020 | 2020Signal Boards175 | Signal Boards | 175 | 0.0811 | 0.8276 | 0.6279 | 0.0017 | 0.0302 | 155 | 0.0073 |
| 2020 | 2020Signal Boards250 | Signal Boards | 250 | 0.1022 | 0.4765 | 0.8737 | 0.0029 | 0.0266 | 255 | 0.0092 |
| 2020 | 2020Signal Boards Composite | Signal Boards Composite | | 0.0129 | 0.0912 | 0.0912 | 0.0002 | 0.0042 | 16.7 | 0.0012 |
| 2020 | 2020Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0171 | 0.0575 | 0.1070 | 0.0002 | 0.0044 | 13.8 | 0.0015 |
| 2020 | 2020Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0230 | 0.2006 | 0.1655 | 0.0003 | 0.0043 | 25.5 | 0.0021 |
| 2020 | 2020Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0218 | 0.2673 | 0.1647 | 0.0005 | 0.0064 | 42.8 | 0.0020 |
| 2020 | 2020Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0222 | 0.2125 | 0.1614 | 0.0004 | 0.0050 | 30.3 | 0.0020 |
| 2020 | 2020Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0265 | 0.1191 | 0.1069 | 0.0002 | 0.0063 | 14.1 | 0.0024 |
| 2020 | 2020Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0570 | 0.4028 | 0.4035 | 0.0007 | 0.0271 | 63.8 | 0.0051 |
| 2020 | 2020Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0550 | 0.4663 | 0.4168 | 0.0010 | 0.0210 | 85.8 | 0.0050 |
| 2020 | 2020Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0652 | 0.2754 | 0.5719 | 0.0015 | 0.0188 | 135 | 0.0059 |
| 2020 | 2020Surfacing Equipment500 | Surfacing Equipment | 500 | 0.1008 | 0.4728 | 0.8400 | 0.0022 | 0.0288 | 221 | 0.0091 |
| 2020 | 2020Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1599 | 0.7413 | 1.3593 | 0.0035 | 0.0459 | 347 | 0.0144 |
| 2020 | 2020Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0823 | 0.3953 | 0.6593 | 0.0017 | 0.0239 | 166 | 0.0074 |
| 2020 | 2020Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2020 | 2020Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2020 | 2020Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0430 | 0.2898 | 0.2365 | 0.0004 | 0.0098 | 31.6 | 0.0039 |
| 2020 | 2020Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0555 | 0.4959 | 0.3694 | 0.0009 | 0.0210 | 75.0 | 0.0050 |
| 2020 | 2020Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0845 | 0.8043 | 0.4869 | 0.0016 | 0.0253 | 139 | 0.0076 |
| 2020 | 2020Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0803 | 0.3198 | 0.4530 | 0.0018 | 0.0152 | 162 | 0.0072 |
| 2020 | 2020Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0584 | 0.4916 | 0.3563 | 0.0009 | 0.0183 | 78.5 | 0.0053 |
| 2020 | 2020Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0046 | 15.9 | 0.0017 |
| 2020 | 2020Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0407 | 0.2760 | 0.2179 | 0.0004 | 0.0087 | 30.3 | 0.0037 |
| 2020 | 2020Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0366 | 0.3402 | 0.2466 | 0.0006 | 0.0129 | 51.7 | 0.0033 |
| 2020 | 2020Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0571 | 0.5841 | 0.3220 | 0.0011 | 0.0159 | 101 | 0.0052 |
| 2020 | 2020Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0813 | 0.3445 | 0.4427 | 0.0019 | 0.0151 | 172 | 0.0073 |
| 2020 | 2020Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1606 | 0.6642 | 0.8132 | 0.0039 | 0.0294 | 345 | 0.0145 |
| 2020 | 2020Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2409 | 0.9959 | 1.2387 | 0.0058 | 0.0443 | 517 | 0.0217 |
| 2020 | 2020Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0436 | 0.3616 | 0.2744 | 0.0008 | 0.0134 | 66.8 | 0.0039 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 2020Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2020 | 2020Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2020 | 2020Trenchers50 | Trenchers | 50 | 0.0990 | 0.3495 | 0.2804 | 0.0004 | 0.0218 | 32.9 | 0.0089 |
| 2020 | 2020Trenchers120 | Trenchers | 120 | 0.0849 | 0.4443 | 0.5223 | 0.0008 | 0.0408 | 64.9 | 0.0077 |
| 2020 | 2020Trenchers175 | Trenchers | 175 | 0.1346 | 0.8393 | 0.9412 | 0.0016 | 0.0521 | 144 | 0.0121 |
| 2020 | 2020Trenchers250 | Trenchers | 250 | 0.1600 | 0.5472 | 1.3120 | 0.0025 | 0.0487 | 223 | 0.0144 |
| 2020 | 2020Trenchers500 | Trenchers | 500 | 0.2092 | 0.8710 | 1.6487 | 0.0031 | 0.0623 | 311 | 0.0189 |
| 2020 | 2020Trenchers750 | Trenchers | 750 | 0.3964 | 1.6395 | 3.1894 | 0.0059 | 0.1191 | 587 | 0.0358 |
| 2020 | 2020Trenchers Composite | Trenchers Composite | | 0.0933 | 0.4270 | 0.4575 | 0.0007 | 0.0336 | 58.7 | 0.0084 |
| 2020 | 2020Welders15 | Welders | 15 | 0.0080 | 0.0388 | 0.0498 | 0.0001 | 0.0025 | 6.2 | 0.0007 |
| 2020 | 2020Welders25 | Welders | 25 | 0.0153 | 0.0492 | 0.0903 | 0.0001 | 0.0042 | 11.3 | 0.0014 |
| 2020 | 2020Welders50 | Welders | 50 | 0.0435 | 0.2219 | 0.1968 | 0.0003 | 0.0110 | 26.0 | 0.0039 |
| 2020 | 2020Welders120 | Welders | 120 | 0.0321 | 0.2508 | 0.2344 | 0.0005 | 0.0153 | 39.5 | 0.0029 |
| 2020 | 2020Welders175 | Welders | 175 | 0.0600 | 0.5396 | 0.4393 | 0.0011 | 0.0223 | 98.2 | 0.0054 |
| 2020 | 2020Welders250 | Welders | 250 | 0.0551 | 0.2294 | 0.4536 | 0.0013 | 0.0142 | 119 | 0.0050 |
| 2020 | 2020Welders500 | Welders | 500 | 0.0748 | 0.3117 | 0.5690 | 0.0016 | 0.0192 | 168 | 0.0067 |
| 2020 | 2020Welders Composite | Welders Composite | | 0.0310 | 0.1816 | 0.1735 | 0.0003 | 0.0102 | 25.6 | 0.0028 |
| 2021 | 2021Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2021 | 2021Aerial Lifts25 | Aerial Lifts | 25 | 0.0136 | 0.0456 | 0.0849 | 0.0001 | 0.0034 | 11.0 | 0.0012 |
| 2021 | 2021Aerial Lifts50 | Aerial Lifts | 50 | 0.0233 | 0.1405 | 0.1369 | 0.0003 | 0.0061 | 19.6 | 0.0021 |
| 2021 | 2021Aerial Lifts120 | Aerial Lifts | 120 | 0.0234 | 0.2280 | 0.1978 | 0.0004 | 0.0110 | 38.1 | 0.0021 |
| 2021 | 2021Aerial Lifts500 | Aerial Lifts | 500 | 0.0703 | 0.3769 | 0.6021 | 0.0021 | 0.0189 | 213 | 0.0063 |
| 2021 | 2021Aerial Lifts750 | Aerial Lifts | 750 | 0.1283 | 0.6813 | 1.1121 | 0.0039 | 0.0346 | 385 | 0.0116 |
| 2021 | 2021Aerial Lifts Composite | Aerial Lifts Composite | | 0.0238 | 0.1677 | 0.1726 | 0.0004 | 0.0080 | 34.7 | 0.0021 |
| 2021 | 2021Air Compressors15 | Air Compressors | 15 | 0.0092 | 0.0449 | 0.0569 | 0.0001 | 0.0027 | 7.2 | 0.0008 |
| 2021 | 2021Air Compressors25 | Air Compressors | 25 | 0.0192 | 0.0623 | 0.1145 | 0.0002 | 0.0052 | 14.4 | 0.0017 |
| 2021 | 2021Air Compressors50 | Air Compressors | 50 | 0.0355 | 0.1979 | 0.1659 | 0.0003 | 0.0085 | 22.3 | 0.0032 |
| 2021 | 2021Air Compressors120 | Air Compressors | 120 | 0.0371 | 0.3037 | 0.2570 | 0.0006 | 0.0160 | 47.0 | 0.0033 |
| 2021 | 2021Air Compressors175 | Air Compressors | 175 | 0.0541 | 0.4975 | 0.3498 | 0.0010 | 0.0183 | 88.5 | 0.0049 |
| 2021 | 2021Air Compressors250 | Air Compressors | 250 | 0.0626 | 0.2564 | 0.4359 | 0.0015 | 0.0141 | 131 | 0.0056 |
| 2021 | 2021Air Compressors500 | Air Compressors | 500 | 0.1075 | 0.4350 | 0.6881 | 0.0023 | 0.0240 | 232 | 0.0097 |
| 2021 | 2021Air Compressors750 | Air Compressors | 750 | 0.1667 | 0.6723 | 1.0871 | 0.0036 | 0.0376 | 358 | 0.0150 |
| 2021 | 2021Air Compressors1000 | Air Compressors | 1000 | 0.2459 | 0.9751 | 3.0739 | 0.0049 | 0.0717 | 486 | 0.0222 |
| 2021 | 2021Air Compressors Composite | Air Compressors Composite | | 0.0442 | 0.3051 | 0.2928 | 0.0007 | 0.0158 | 63.6 | 0.0040 |
| 2021 | 2021Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2021 | 2021Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2021 | 2021Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0193 | 0.2202 | 0.1710 | 0.0004 | 0.0015 | 31.0 | 0.0017 |
| 2021 | 2021Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0269 | 0.4661 | 0.2191 | 0.0009 | 0.0030 | 77.1 | 0.0024 |
| 2021 | 2021Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0373 | 0.7542 | 0.1473 | 0.0016 | 0.0039 | 141 | 0.0034 |
| 2021 | 2021Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0456 | 0.3426 | 0.1364 | 0.0021 | 0.0041 | 188 | 0.0041 |
| 2021 | 2021Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0753 | 0.5512 | 0.2223 | 0.0031 | 0.0068 | 311 | 0.0068 |
| 2021 | 2021Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1488 | 1.0889 | 0.4398 | 0.0062 | 0.0134 | 615 | 0.0134 |
| 2021 | 2021Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2329 | 1.6434 | 3.9539 | 0.0093 | 0.0472 | 928 | 0.0210 |
| 2021 | 2021Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0460 | 0.5007 | 0.3219 | 0.0017 | 0.0053 | 165 | 0.0042 |
| 2021 | 2021Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2021 | 2021Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0220 | 0.0736 | 0.1365 | 0.0002 | 0.0056 | 17.6 | 0.0020 |
| 2021 | 2021Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0086 | 0.0415 | 0.0535 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2021 | 2021Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2021 | 2021Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0384 | 0.2382 | 0.2160 | 0.0004 | 0.0098 | 30.2 | 0.0035 |
| 2021 | 2021Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0483 | 0.4598 | 0.3802 | 0.0009 | 0.0217 | 74.1 | 0.0044 |
| 2021 | 2021Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0808 | 0.8662 | 0.5793 | 0.0018 | 0.0286 | 160 | 0.0073 |
| 2021 | 2021Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0444 | 0.3761 | 0.3176 | 0.0007 | 0.0171 | 58.5 | 0.0040 |
| 2021 | 2021Cranes50 | Cranes | 50 | 0.0483 | 0.2377 | 0.1837 | 0.0003 | 0.0107 | 23.2 | 0.0044 |
| 2021 | 2021Cranes120 | Cranes | 120 | 0.0499 | 0.3428 | 0.3072 | 0.0006 | 0.0210 | 50.1 | 0.0045 |
| 2021 | 2021Cranes175 | Cranes | 175 | 0.0601 | 0.4750 | 0.3641 | 0.0009 | 0.0197 | 80.3 | 0.0054 |
| 2021 | 2021Cranes250 | Cranes | 250 | 0.0667 | 0.2407 | 0.4404 | 0.0013 | 0.0152 | 112 | 0.0060 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 2021Cranes500 | Cranes | 500 | 0.1035 | 0.3747 | 0.6303 | 0.0018 | 0.0231 | 180 | 0.0093 |
| 2021 | 2021Cranes750 | Cranes | 750 | 0.1746 | 0.6301 | 1.0891 | 0.0030 | 0.0393 | 303 | 0.0158 |
| 2021 | 2021Cranes9999 | Cranes | 9999 | 0.6375 | 2.1272 | 6.6964 | 0.0098 | 0.1645 | 971 | 0.0575 |
| 2021 | 2021Cranes Composite | Cranes Composite | | 0.0846 | 0.3865 | 0.6033 | 0.0014 | 0.0229 | 129 | 0.0076 |
| 2021 | 2021Crawler Tractors50 | Crawler Tractors | 50 | 0.0649 | 0.2722 | 0.2046 | 0.0003 | 0.0136 | 24.9 | 0.0059 |
| 2021 | 2021Crawler Tractors120 | Crawler Tractors | 120 | 0.0780 | 0.4606 | 0.4585 | 0.0008 | 0.0336 | 65.8 | 0.0070 |
| 2021 | 2021Crawler Tractors175 | Crawler Tractors | 175 | 0.1054 | 0.7292 | 0.6524 | 0.0014 | 0.0362 | 121 | 0.0095 |
| 2021 | 2021Crawler Tractors250 | Crawler Tractors | 250 | 0.1123 | 0.3881 | 0.7899 | 0.0019 | 0.0285 | 166 | 0.0101 |
| 2021 | 2021Crawler Tractors500 | Crawler Tractors | 500 | 0.1669 | 0.6452 | 1.1075 | 0.0025 | 0.0412 | 259 | 0.0151 |
| 2021 | 2021Crawler Tractors750 | Crawler Tractors | 750 | 0.3006 | 1.1555 | 2.0421 | 0.0047 | 0.0750 | 465 | 0.0271 |
| 2021 | 2021Crawler Tractors1000 | Crawler Tractors | 1000 | 0.4584 | 1.7742 | 4.9834 | 0.0066 | 0.1317 | 658 | 0.0414 |
| 2021 | 2021Crawler Tractors Composite | Crawler Tractors Composite | | 0.0988 | 0.5208 | 0.6239 | 0.0013 | 0.0343 | 114 | 0.0089 |
| 2021 | 2021Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0668 | 0.3978 | 0.3262 | 0.0006 | 0.0156 | 44.0 | 0.0060 |
| 2021 | 2021Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0641 | 0.5430 | 0.4374 | 0.0010 | 0.0261 | 83.1 | 0.0058 |
| 2021 | 2021Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.1015 | 0.9522 | 0.6223 | 0.0019 | 0.0324 | 167 | 0.0092 |
| 2021 | 2021Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1182 | 0.4815 | 0.7556 | 0.0028 | 0.0248 | 245 | 0.0107 |
| 2021 | 2021Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1765 | 0.7050 | 1.0353 | 0.0037 | 0.0366 | 374 | 0.0159 |
| 2021 | 2021Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2779 | 1.1108 | 1.6653 | 0.0059 | 0.0578 | 589 | 0.0251 |
| 2021 | 2021Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.7241 | 2.6136 | 8.0264 | 0.0131 | 0.1854 | 1,308 | 0.0653 |
| 2021 | 2021Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0872 | 0.6224 | 0.5412 | 0.0015 | 0.0270 | 132 | 0.0079 |
| 2021 | 2021Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2021 | 2021Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2021 | 2021Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2021 | 2021Excavators50 | Excavators | 50 | 0.0356 | 0.2421 | 0.1802 | 0.0003 | 0.0068 | 25.0 | 0.0032 |
| 2021 | 2021Excavators120 | Excavators | 120 | 0.0543 | 0.4967 | 0.3429 | 0.0009 | 0.0174 | 73.6 | 0.0049 |
| 2021 | 2021Excavators175 | Excavators | 175 | 0.0655 | 0.6637 | 0.3377 | 0.0013 | 0.0168 | 112 | 0.0059 |
| 2021 | 2021Excavators250 | Excavators | 250 | 0.0783 | 0.3258 | 0.3891 | 0.0018 | 0.0134 | 159 | 0.0071 |
| 2021 | 2021Excavators500 | Excavators | 500 | 0.1137 | 0.4561 | 0.5254 | 0.0023 | 0.0191 | 234 | 0.0103 |
| 2021 | 2021Excavators750 | Excavators | 750 | 0.1885 | 0.7559 | 0.8840 | 0.0039 | 0.0319 | 387 | 0.0170 |
| 2021 | 2021Excavators Composite | Excavators Composite | | 0.0687 | 0.5113 | 0.3577 | 0.0013 | 0.0158 | 120 | 0.0062 |
| 2021 | 2021Forklifts50 | Forklifts | 50 | 0.0175 | 0.1376 | 0.1034 | 0.0002 | 0.0032 | 14.7 | 0.0016 |
| 2021 | 2021Forklifts120 | Forklifts | 120 | 0.0207 | 0.2091 | 0.1321 | 0.0004 | 0.0059 | 31.2 | 0.0019 |
| 2021 | 2021Forklifts175 | Forklifts | 175 | 0.0305 | 0.3303 | 0.1503 | 0.0006 | 0.0069 | 56.1 | 0.0027 |
| 2021 | 2021Forklifts250 | Forklifts | 250 | 0.0354 | 0.1548 | 0.1554 | 0.0009 | 0.0050 | 77.1 | 0.0032 |
| 2021 | 2021Forklifts500 | Forklifts | 500 | 0.0506 | 0.2120 | 0.2091 | 0.0011 | 0.0070 | 111 | 0.0046 |
| 2021 | 2021Forklifts Composite | Forklifts Composite | | 0.0294 | 0.2148 | 0.1459 | 0.0006 | 0.0056 | 54.4 | 0.0027 |
| 2021 | 2021Generator Sets15 | Generator Sets | 15 | 0.0114 | 0.0635 | 0.0800 | 0.0002 | 0.0036 | 10.2 | 0.0010 |
| 2021 | 2021Generator Sets25 | Generator Sets | 25 | 0.0221 | 0.0761 | 0.1397 | 0.0002 | 0.0061 | 17.6 | 0.0020 |
| 2021 | 2021Generator Sets50 | Generator Sets | 50 | 0.0338 | 0.2115 | 0.2116 | 0.0004 | 0.0091 | 30.6 | 0.0030 |
| 2021 | 2021Generator Sets120 | Generator Sets | 120 | 0.0456 | 0.4617 | 0.3996 | 0.0009 | 0.0215 | 77.9 | 0.0041 |
| 2021 | 2021Generator Sets175 | Generator Sets | 175 | 0.0617 | 0.7313 | 0.5233 | 0.0016 | 0.0233 | 142 | 0.0056 |
| 2021 | 2021Generator Sets250 | Generator Sets | 250 | 0.0694 | 0.3807 | 0.6568 | 0.0024 | 0.0190 | 213 | 0.0063 |
| 2021 | 2021Generator Sets500 | Generator Sets | 500 | 0.1052 | 0.5913 | 0.9401 | 0.0033 | 0.0291 | 337 | 0.0095 |
| 2021 | 2021Generator Sets750 | Generator Sets | 750 | 0.1717 | 0.9545 | 1.5502 | 0.0055 | 0.0475 | 544 | 0.0155 |
| 2021 | 2021Generator Sets9999 | Generator Sets | 9999 | 0.4120 | 1.9665 | 6.2664 | 0.0105 | 0.1316 | 1,049 | 0.0372 |
| 2021 | 2021Generator Sets Composite | Generator Sets Composite | | 0.0363 | 0.2708 | 0.2978 | 0.0007 | 0.0131 | 61.0 | 0.0033 |
| 2021 | 2021Graders50 | Graders | 50 | 0.0516 | 0.2718 | 0.2089 | 0.0004 | 0.0109 | 27.5 | 0.0047 |
| 2021 | 2021Graders120 | Graders | 120 | 0.0684 | 0.5069 | 0.4241 | 0.0009 | 0.0272 | 75.0 | 0.0062 |
| 2021 | 2021Graders175 | Graders | 175 | 0.0854 | 0.7277 | 0.5015 | 0.0014 | 0.0267 | 124 | 0.0077 |
| 2021 | 2021Graders250 | Graders | 250 | 0.0947 | 0.3647 | 0.5955 | 0.0019 | 0.0205 | 172 | 0.0085 |
| 2021 | 2021Graders500 | Graders | 500 | 0.1222 | 0.4875 | 0.7112 | 0.0023 | 0.0258 | 229 | 0.0110 |
| 2021 | 2021Graders750 | Graders | 750 | 0.2598 | 1.0314 | 1.5507 | 0.0049 | 0.0555 | 486 | 0.0234 |
| 2021 | 2021Graders Composite | Graders Composite | | 0.0861 | 0.5747 | 0.5213 | 0.0015 | 0.0247 | 133 | 0.0078 |
| 2021 | 2021Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1378 | 0.6749 | 0.7959 | 0.0011 | 0.0626 | 93.7 | 0.0124 |
| 2021 | 2021Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1379 | 0.8000 | 0.9027 | 0.0015 | 0.0507 | 130 | 0.0124 |
| 2021 | 2021Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1087 | 0.3507 | 0.8198 | 0.0015 | 0.0320 | 130 | 0.0098 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 2021Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.4454 | 1.7945 | 3.3054 | 0.0057 | 0.1282 | 568 | 0.0402 |
| 2021 | 2021Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.6794 | 2.8019 | 7.1274 | 0.0082 | 0.2070 | 814 | 0.0613 |
| 2021 | 2021Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1394 | 0.6413 | 0.9902 | 0.0017 | 0.0459 | 151 | 0.0126 |
| 2021 | 2021Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0782 | 0.7537 | 0.4000 | 0.0014 | 0.0203 | 125 | 0.0071 |
| 2021 | 2021Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0879 | 0.3493 | 0.4383 | 0.0019 | 0.0151 | 167 | 0.0079 |
| 2021 | 2021Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1415 | 0.5407 | 0.6543 | 0.0027 | 0.0240 | 272 | 0.0128 |
| 2021 | 2021Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2297 | 0.8769 | 1.0788 | 0.0044 | 0.0391 | 442 | 0.0207 |
| 2021 | 2021Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.3421 | 1.2771 | 3.7016 | 0.0063 | 0.0814 | 625 | 0.0309 |
| 2021 | 2021Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1370 | 0.5476 | 0.7382 | 0.0027 | 0.0246 | 260 | 0.0124 |
| 2021 | 2021Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2021 | 2021Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2021 | 2021Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0303 | 0.2243 | 0.1893 | 0.0004 | 0.0067 | 28.0 | 0.0027 |
| 2021 | 2021Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0468 | 0.5069 | 0.3537 | 0.0009 | 0.0169 | 80.9 | 0.0042 |
| 2021 | 2021Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0491 | 0.5858 | 0.2972 | 0.0012 | 0.0142 | 107 | 0.0044 |
| 2021 | 2021Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0961 | 0.4654 | 0.5253 | 0.0025 | 0.0185 | 254 | 0.0087 |
| 2021 | 2021Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0534 | 0.3497 | 0.3120 | 0.0013 | 0.0121 | 122 | 0.0048 |
| 2021 | 2021Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2021 | 2021Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2021 | 2021Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0388 | 0.2161 | 0.1676 | 0.0003 | 0.0086 | 21.7 | 0.0035 |
| 2021 | 2021Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0551 | 0.4205 | 0.3467 | 0.0007 | 0.0218 | 62.0 | 0.0050 |
| 2021 | 2021Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0664 | 0.5654 | 0.3871 | 0.0011 | 0.0205 | 95.9 | 0.0060 |
| 2021 | 2021Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0739 | 0.2775 | 0.4574 | 0.0015 | 0.0149 | 136 | 0.0067 |
| 2021 | 2021Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1411 | 0.5167 | 0.8006 | 0.0026 | 0.0282 | 265 | 0.0127 |
| 2021 | 2021Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2333 | 0.8515 | 1.3488 | 0.0044 | 0.0470 | 437 | 0.0210 |
| 2021 | 2021Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.3231 | 1.1617 | 3.6053 | 0.0056 | 0.0863 | 560 | 0.0292 |
| 2021 | 2021Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0915 | 0.4479 | 0.5887 | 0.0016 | 0.0227 | 152 | 0.0083 |
| 2021 | 2021Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0535 | 0.2980 | 0.2331 | 0.0004 | 0.0120 | 30.3 | 0.0048 |
| 2021 | 2021Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0533 | 0.4091 | 0.3386 | 0.0007 | 0.0213 | 60.7 | 0.0048 |
| 2021 | 2021Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0837 | 0.7158 | 0.4921 | 0.0014 | 0.0261 | 122 | 0.0075 |
| 2021 | 2021Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0781 | 0.2953 | 0.4889 | 0.0016 | 0.0159 | 145 | 0.0070 |
| 2021 | 2021Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.1007 | 0.3715 | 0.5777 | 0.0019 | 0.0203 | 192 | 0.0091 |
| 2021 | 2021Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.4606 | 1.5333 | 4.7673 | 0.0073 | 0.1140 | 741 | 0.0416 |
| 2021 | 2021Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0860 | 0.4392 | 0.5748 | 0.0015 | 0.0218 | 141 | 0.0078 |
| 2021 | 2021Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1425 | 0.0002 | 0.0055 | 18.7 | 0.0020 |
| 2021 | 2021Pavers50 | Pavers | 50 | 0.0774 | 0.2996 | 0.2332 | 0.0004 | 0.0168 | 28.0 | 0.0070 |
| 2021 | 2021Pavers120 | Pavers | 120 | 0.0855 | 0.4780 | 0.5137 | 0.0008 | 0.0391 | 69.2 | 0.0077 |
| 2021 | 2021Pavers175 | Pavers | 175 | 0.1148 | 0.7586 | 0.7520 | 0.0014 | 0.0421 | 128 | 0.0104 |
| 2021 | 2021Pavers250 | Pavers | 250 | 0.1338 | 0.4598 | 1.0174 | 0.0022 | 0.0371 | 194 | 0.0121 |
| 2021 | 2021Pavers500 | Pavers | 500 | 0.1518 | 0.6069 | 1.0951 | 0.0023 | 0.0410 | 233 | 0.0137 |
| 2021 | 2021Pavers Composite | Pavers Composite | | 0.0928 | 0.4878 | 0.5089 | 0.0009 | 0.0325 | 77.9 | 0.0084 |
| 2021 | 2021Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2021 | 2021Paving Equipment50 | Paving Equipment | 50 | 0.0648 | 0.2524 | 0.1987 | 0.0003 | 0.0143 | 23.9 | 0.0058 |
| 2021 | 2021Paving Equipment120 | Paving Equipment | 120 | 0.0662 | 0.3741 | 0.4010 | 0.0006 | 0.0307 | 54.5 | 0.0060 |
| 2021 | 2021Paving Equipment175 | Paving Equipment | 175 | 0.0888 | 0.5934 | 0.5867 | 0.0011 | 0.0329 | 101 | 0.0080 |
| 2021 | 2021Paving Equipment250 | Paving Equipment | 250 | 0.0820 | 0.2827 | 0.6331 | 0.0014 | 0.0227 | 122 | 0.0074 |
| 2021 | 2021Paving Equipment Composite | Paving Equipment Composite | | 0.0710 | 0.4062 | 0.4462 | 0.0008 | 0.0288 | 68.9 | 0.0064 |
| 2021 | 2021Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2021 | 2021Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2021 | 2021Pressure Washers15 | Pressure Washers | 15 | 0.0055 | 0.0304 | 0.0383 | 0.0001 | 0.0017 | 4.9 | 0.0005 |
| 2021 | 2021Pressure Washers25 | Pressure Washers | 25 | 0.0090 | 0.0308 | 0.0566 | 0.0001 | 0.0025 | 7.1 | 0.0008 |
| 2021 | 2021Pressure Washers50 | Pressure Washers | 50 | 0.0113 | 0.0841 | 0.0949 | 0.0002 | 0.0035 | 14.3 | 0.0010 |
| 2021 | 2021Pressure Washers120 | Pressure Washers | 120 | 0.0114 | 0.1362 | 0.1182 | 0.0003 | 0.0056 | 24.1 | 0.0010 |
| 2021 | 2021Pressure Washers Composite | Pressure Washers Composite | | 0.0079 | 0.0543 | 0.0625 | 0.0001 | 0.0027 | 9.4 | 0.0007 |
| 2021 | 2021Pumps15 | Pumps | 15 | 0.0094 | 0.0462 | 0.0585 | 0.0001 | 0.0028 | 7.4 | 0.0008 |
| 2021 | 2021Pumps25 | Pumps | 25 | 0.0259 | 0.0841 | 0.1544 | 0.0002 | 0.0070 | 19.5 | 0.0023 |
| 2021 | 2021Pumps50 | Pumps | 50 | 0.0415 | 0.2490 | 0.2404 | 0.0004 | 0.0108 | 34.3 | 0.0037 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 2021Pumps120 | Pumps | 120 | 0.0484 | 0.4687 | 0.4054 | 0.0009 | 0.0227 | 77.9 | 0.0044 |
| 2021 | 2021Pumps175 | Pumps | 175 | 0.0652 | 0.7325 | 0.5249 | 0.0016 | 0.0242 | 140 | 0.0059 |
| 2021 | 2021Pumps250 | Pumps | 250 | 0.0707 | 0.3662 | 0.6331 | 0.0023 | 0.0187 | 201 | 0.0064 |
| 2021 | 2021Pumps500 | Pumps | 500 | 0.1162 | 0.6131 | 0.9769 | 0.0034 | 0.0310 | 345 | 0.0105 |
| 2021 | 2021Pumps750 | Pumps | 750 | 0.1939 | 1.0135 | 1.6500 | 0.0057 | 0.0519 | 571 | 0.0175 |
| 2021 | 2021Pumps9999 | Pumps | 9999 | 0.5635 | 2.5731 | 8.1862 | 0.0136 | 0.1751 | 1,355 | 0.0508 |
| 2021 | 2021Pumps Composite | Pumps Composite | | 0.0344 | 0.2652 | 0.2637 | 0.0006 | 0.0128 | 49.6 | 0.0031 |
| 2021 | 2021Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2021 | 2021Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2021 | 2021Rollers50 | Rollers | 50 | 0.0491 | 0.2389 | 0.1979 | 0.0003 | 0.0114 | 26.0 | 0.0044 |
| 2021 | 2021Rollers120 | Rollers | 120 | 0.0529 | 0.3854 | 0.3524 | 0.0007 | 0.0238 | 59.0 | 0.0048 |
| 2021 | 2021Rollers175 | Rollers | 175 | 0.0719 | 0.6108 | 0.4775 | 0.0012 | 0.0254 | 108 | 0.0065 |
| 2021 | 2021Rollers250 | Rollers | 250 | 0.0800 | 0.3158 | 0.5870 | 0.0017 | 0.0201 | 153 | 0.0072 |
| 2021 | 2021Rollers500 | Rollers | 500 | 0.1100 | 0.4490 | 0.7481 | 0.0022 | 0.0270 | 219 | 0.0099 |
| 2021 | 2021Rollers Composite | Rollers Composite | | 0.0540 | 0.3816 | 0.3483 | 0.0008 | 0.0206 | 67.0 | 0.0049 |
| 2021 | 2021Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0479 | 0.3133 | 0.2472 | 0.0004 | 0.0105 | 33.9 | 0.0043 |
| 2021 | 2021Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0461 | 0.4131 | 0.3062 | 0.0007 | 0.0168 | 62.4 | 0.0042 |
| 2021 | 2021Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0736 | 0.7229 | 0.4132 | 0.0014 | 0.0213 | 125 | 0.0066 |
| 2021 | 2021Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0832 | 0.3419 | 0.4658 | 0.0019 | 0.0158 | 171 | 0.0075 |
| 2021 | 2021Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1228 | 0.4904 | 0.6343 | 0.0025 | 0.0231 | 257 | 0.0111 |
| 2021 | 2021Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0497 | 0.4454 | 0.3193 | 0.0008 | 0.0172 | 70.3 | 0.0045 |
| 2021 | 2021Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1432 | 0.8097 | 0.9278 | 0.0015 | 0.0522 | 129 | 0.0129 |
| 2021 | 2021Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1616 | 0.5121 | 1.1988 | 0.0021 | 0.0475 | 183 | 0.0146 |
| 2021 | 2021Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2182 | 0.8829 | 1.5670 | 0.0026 | 0.0622 | 265 | 0.0197 |
| 2021 | 2021Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3297 | 1.3266 | 2.4124 | 0.0040 | 0.0946 | 399 | 0.0297 |
| 2021 | 2021Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.5186 | 2.1395 | 5.3122 | 0.0060 | 0.1566 | 592 | 0.0468 |
| 2021 | 2021Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.2015 | 0.7661 | 1.4661 | 0.0025 | 0.0582 | 239 | 0.0182 |
| 2021 | 2021Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2021 | 2021Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0561 | 0.3032 | 0.2349 | 0.0004 | 0.0120 | 31.1 | 0.0051 |
| 2021 | 2021Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0520 | 0.3960 | 0.3271 | 0.0007 | 0.0206 | 58.9 | 0.0047 |
| 2021 | 2021Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0712 | 0.6211 | 0.4192 | 0.0012 | 0.0222 | 106 | 0.0064 |
| 2021 | 2021Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0804 | 0.3129 | 0.5008 | 0.0017 | 0.0173 | 149 | 0.0073 |
| 2021 | 2021Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1240 | 0.4920 | 0.7143 | 0.0023 | 0.0260 | 237 | 0.0112 |
| 2021 | 2021Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2549 | 1.0075 | 1.5039 | 0.0049 | 0.0540 | 486 | 0.0230 |
| 2021 | 2021Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.3298 | 1.2808 | 3.8115 | 0.0060 | 0.0894 | 594 | 0.0298 |
| 2021 | 2021Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0705 | 0.4381 | 0.4275 | 0.0012 | 0.0206 | 109 | 0.0064 |
| 2021 | 2021Scrapers120 | Scrapers | 120 | 0.1142 | 0.6580 | 0.6720 | 0.0011 | 0.0501 | 93.9 | 0.0103 |
| 2021 | 2021Scrapers175 | Scrapers | 175 | 0.1316 | 0.8907 | 0.8250 | 0.0017 | 0.0460 | 148 | 0.0119 |
| 2021 | 2021Scrapers250 | Scrapers | 250 | 0.1442 | 0.4935 | 1.0349 | 0.0024 | 0.0374 | 209 | 0.0130 |
| 2021 | 2021Scrapers500 | Scrapers | 500 | 0.2102 | 0.8168 | 1.4242 | 0.0032 | 0.0531 | 321 | 0.0190 |
| 2021 | 2021Scrapers750 | Scrapers | 750 | 0.3649 | 1.4095 | 2.5312 | 0.0056 | 0.0932 | 555 | 0.0329 |
| 2021 | 2021Scrapers Composite | Scrapers Composite | | 0.1815 | 0.7745 | 1.2263 | 0.0027 | 0.0492 | 262 | 0.0164 |
| 2021 | 2021Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2021 | 2021Signal Boards50 | Signal Boards | 50 | 0.0455 | 0.2789 | 0.2549 | 0.0005 | 0.0114 | 36.2 | 0.0041 |
| 2021 | 2021Signal Boards120 | Signal Boards | 120 | 0.0513 | 0.4930 | 0.4078 | 0.0009 | 0.0230 | 80.2 | 0.0046 |
| 2021 | 2021Signal Boards175 | Signal Boards | 175 | 0.0757 | 0.8277 | 0.5557 | 0.0017 | 0.0267 | 155 | 0.0068 |
| 2021 | 2021Signal Boards250 | Signal Boards | 250 | 0.0968 | 0.4734 | 0.7633 | 0.0029 | 0.0235 | 255 | 0.0087 |
| 2021 | 2021Signal Boards Composite | Signal Boards Composite | | 0.0125 | 0.0911 | 0.0863 | 0.0002 | 0.0039 | 16.7 | 0.0011 |
| 2021 | 2021Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0169 | 0.0572 | 0.1065 | 0.0002 | 0.0042 | 13.8 | 0.0015 |
| 2021 | 2021Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0220 | 0.1998 | 0.1600 | 0.0003 | 0.0036 | 25.5 | 0.0020 |
| 2021 | 2021Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0207 | 0.2671 | 0.1538 | 0.0005 | 0.0053 | 42.8 | 0.0019 |
| 2021 | 2021Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0212 | 0.2119 | 0.1544 | 0.0004 | 0.0042 | 30.3 | 0.0019 |
| 2021 | 2021Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0242 | 0.1170 | 0.1037 | 0.0002 | 0.0057 | 14.1 | 0.0022 |
| 2021 | 2021Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0525 | 0.4008 | 0.3760 | 0.0007 | 0.0242 | 63.8 | 0.0047 |
| 2021 | 2021Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0511 | 0.4658 | 0.3757 | 0.0010 | 0.0189 | 85.8 | 0.0046 |
| 2021 | 2021Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0617 | 0.2715 | 0.5141 | 0.0015 | 0.0170 | 135 | 0.0056 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | 2021Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0959 | 0.4602 | 0.7556 | 0.0022 | 0.0261 | 221 | 0.0087 |
| 2021 | 2021Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1520 | 0.7215 | 1.2216 | 0.0035 | 0.0416 | 347 | 0.0137 |
| 2021 | 2021Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0779 | 0.3860 | 0.5953 | 0.0017 | 0.0216 | 166 | 0.0070 |
| 2021 | 2021Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2021 | 2021Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2021 | 2021Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0391 | 0.2844 | 0.2261 | 0.0004 | 0.0081 | 31.6 | 0.0035 |
| 2021 | 2021Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0510 | 0.4931 | 0.3380 | 0.0009 | 0.0173 | 75.0 | 0.0046 |
| 2021 | 2021Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0774 | 0.8017 | 0.4205 | 0.0016 | 0.0208 | 139 | 0.0070 |
| 2021 | 2021Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0744 | 0.3184 | 0.3827 | 0.0018 | 0.0125 | 162 | 0.0067 |
| 2021 | 2021Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0536 | 0.4882 | 0.3225 | 0.0009 | 0.0151 | 78.5 | 0.0048 |
| 2021 | 2021Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2021 | 2021Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0376 | 0.2733 | 0.2108 | 0.0004 | 0.0073 | 30.3 | 0.0034 |
| 2021 | 2021Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0340 | 0.3394 | 0.2275 | 0.0006 | 0.0108 | 51.7 | 0.0031 |
| 2021 | 2021Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0533 | 0.5841 | 0.2798 | 0.0011 | 0.0135 | 101 | 0.0048 |
| 2021 | 2021Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0769 | 0.3430 | 0.3814 | 0.0019 | 0.0131 | 172 | 0.0069 |
| 2021 | 2021Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1523 | 0.6596 | 0.7068 | 0.0039 | 0.0255 | 345 | 0.0137 |
| 2021 | 2021Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2284 | 0.9891 | 1.0736 | 0.0058 | 0.0385 | 517 | 0.0206 |
| 2021 | 2021Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0407 | 0.3606 | 0.2506 | 0.0008 | 0.0113 | 66.8 | 0.0037 |
| 2021 | 2021Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2021 | 2021Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2021 | 2021Trenchers50 | Trenchers | 50 | 0.0921 | 0.3425 | 0.2729 | 0.0004 | 0.0201 | 32.9 | 0.0083 |
| 2021 | 2021Trenchers120 | Trenchers | 120 | 0.0799 | 0.4419 | 0.4914 | 0.0008 | 0.0375 | 64.9 | 0.0072 |
| 2021 | 2021Trenchers175 | Trenchers | 175 | 0.1272 | 0.8376 | 0.8675 | 0.0016 | 0.0481 | 144 | 0.0115 |
| 2021 | 2021Trenchers250 | Trenchers | 250 | 0.1517 | 0.5327 | 1.2061 | 0.0025 | 0.0445 | 223 | 0.0137 |
| 2021 | 2021Trenchers500 | Trenchers | 500 | 0.1992 | 0.8364 | 1.5150 | 0.0031 | 0.0571 | 311 | 0.0180 |
| 2021 | 2021Trenchers750 | Trenchers | 750 | 0.3775 | 1.5747 | 2.9328 | 0.0059 | 0.1091 | 587 | 0.0341 |
| 2021 | 2021Trenchers Composite | Trenchers Composite | | 0.0874 | 0.4226 | 0.4327 | 0.0007 | 0.0309 | 58.7 | 0.0079 |
| 2021 | 2021Welders15 | Welders | 15 | 0.0079 | 0.0386 | 0.0489 | 0.0001 | 0.0024 | 6.2 | 0.0007 |
| 2021 | 2021Welders25 | Welders | 25 | 0.0150 | 0.0487 | 0.0894 | 0.0001 | 0.0040 | 11.3 | 0.0014 |
| 2021 | 2021Welders50 | Welders | 50 | 0.0387 | 0.2163 | 0.1893 | 0.0003 | 0.0094 | 26.0 | 0.0035 |
| 2021 | 2021Welders120 | Welders | 120 | 0.0291 | 0.2492 | 0.2134 | 0.0005 | 0.0131 | 39.5 | 0.0026 |
| 2021 | 2021Welders175 | Welders | 175 | 0.0552 | 0.5383 | 0.3833 | 0.0011 | 0.0194 | 98.2 | 0.0050 |
| 2021 | 2021Welders250 | Welders | 250 | 0.0515 | 0.2269 | 0.3907 | 0.0013 | 0.0123 | 119 | 0.0046 |
| 2021 | 2021Welders500 | Welders | 500 | 0.0703 | 0.3086 | 0.4915 | 0.0016 | 0.0167 | 168 | 0.0063 |
| 2021 | 2021Welders Composite | Welders Composite | | 0.0280 | 0.1788 | 0.1635 | 0.0003 | 0.0088 | 25.6 | 0.0025 |
| 2022 | 2022Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2022 | 2022Aerial Lifts25 | Aerial Lifts | 25 | 0.0134 | 0.0454 | 0.0845 | 0.0001 | 0.0033 | 11.0 | 0.0012 |
| 2022 | 2022Aerial Lifts50 | Aerial Lifts | 50 | 0.0213 | 0.1388 | 0.1328 | 0.0003 | 0.0053 | 19.6 | 0.0019 |
| 2022 | 2022Aerial Lifts120 | Aerial Lifts | 120 | 0.0216 | 0.2275 | 0.1829 | 0.0004 | 0.0096 | 38.1 | 0.0020 |
| 2022 | 2022Aerial Lifts500 | Aerial Lifts | 500 | 0.0668 | 0.3746 | 0.5339 | 0.0021 | 0.0167 | 213 | 0.0060 |
| 2022 | 2022Aerial Lifts750 | Aerial Lifts | 750 | 0.1217 | 0.6772 | 0.9849 | 0.0039 | 0.0305 | 385 | 0.0110 |
| 2022 | 2022Aerial Lifts Composite | Aerial Lifts Composite | | 0.0222 | 0.1667 | 0.1619 | 0.0004 | 0.0071 | 34.7 | 0.0020 |
| 2022 | 2022Air Compressors15 | Air Compressors | 15 | 0.0090 | 0.0448 | 0.0562 | 0.0001 | 0.0026 | 7.2 | 0.0008 |
| 2022 | 2022Air Compressors25 | Air Compressors | 25 | 0.0189 | 0.0618 | 0.1138 | 0.0002 | 0.0049 | 14.4 | 0.0017 |
| 2022 | 2022Air Compressors50 | Air Compressors | 50 | 0.0326 | 0.1954 | 0.1609 | 0.0003 | 0.0073 | 22.3 | 0.0029 |
| 2022 | 2022Air Compressors120 | Air Compressors | 120 | 0.0346 | 0.3031 | 0.2371 | 0.0006 | 0.0139 | 47.0 | 0.0031 |
| 2022 | 2022Air Compressors175 | Air Compressors | 175 | 0.0508 | 0.4979 | 0.3093 | 0.0010 | 0.0161 | 88.5 | 0.0046 |
| 2022 | 2022Air Compressors250 | Air Compressors | 250 | 0.0595 | 0.2550 | 0.3794 | 0.0015 | 0.0124 | 131 | 0.0054 |
| 2022 | 2022Air Compressors500 | Air Compressors | 500 | 0.1026 | 0.4326 | 0.6095 | 0.0023 | 0.0211 | 232 | 0.0093 |
| 2022 | 2022Air Compressors750 | Air Compressors | 750 | 0.1590 | 0.6685 | 0.9614 | 0.0036 | 0.0330 | 358 | 0.0143 |
| 2022 | 2022Air Compressors1000 | Air Compressors | 1000 | 0.2330 | 0.9602 | 2.9122 | 0.0049 | 0.0651 | 486 | 0.0210 |
| 2022 | 2022Air Compressors Composite | Air Compressors Composite | | 0.0414 | 0.3041 | 0.2677 | 0.0007 | 0.0138 | 63.6 | 0.0037 |
| 2022 | 2022Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2022 | 2022Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2022 | 2022Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0192 | 0.2200 | 0.1680 | 0.0004 | 0.0011 | 31.0 | 0.0017 |
| 2022 | 2022Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0262 | 0.4660 | 0.2091 | 0.0009 | 0.0025 | 77.1 | 0.0024 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 2022Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0353 | 0.7541 | 0.1179 | 0.0016 | 0.0035 | 141 | 0.0032 |
| 2022 | 2022Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0442 | 0.3426 | 0.1180 | 0.0021 | 0.0039 | 188 | 0.0040 |
| 2022 | 2022Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0731 | 0.5511 | 0.1932 | 0.0031 | 0.0065 | 311 | 0.0066 |
| 2022 | 2022Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1444 | 1.0889 | 0.3821 | 0.0062 | 0.0128 | 615 | 0.0130 |
| 2022 | 2022Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2241 | 1.6434 | 3.9312 | 0.0093 | 0.0428 | 928 | 0.0202 |
| 2022 | 2022Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0446 | 0.5007 | 0.3059 | 0.0017 | 0.0048 | 165 | 0.0040 |
| 2022 | 2022Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2022 | 2022Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0218 | 0.0731 | 0.1359 | 0.0002 | 0.0054 | 17.6 | 0.0020 |
| 2022 | 2022Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0535 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2022 | 2022Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2022 | 2022Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0351 | 0.2351 | 0.2093 | 0.0004 | 0.0084 | 30.2 | 0.0032 |
| 2022 | 2022Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0448 | 0.4586 | 0.3505 | 0.0009 | 0.0188 | 74.1 | 0.0040 |
| 2022 | 2022Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0755 | 0.8662 | 0.5091 | 0.0018 | 0.0251 | 160 | 0.0068 |
| 2022 | 2022Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0411 | 0.3743 | 0.2962 | 0.0007 | 0.0148 | 58.5 | 0.0037 |
| 2022 | 2022Cranes50 | Cranes | 50 | 0.0439 | 0.2338 | 0.1783 | 0.0003 | 0.0094 | 23.2 | 0.0040 |
| 2022 | 2022Cranes120 | Cranes | 120 | 0.0459 | 0.3413 | 0.2846 | 0.0006 | 0.0182 | 50.1 | 0.0041 |
| 2022 | 2022Cranes175 | Cranes | 175 | 0.0559 | 0.4747 | 0.3248 | 0.0009 | 0.0174 | 80.3 | 0.0050 |
| 2022 | 2022Cranes250 | Cranes | 250 | 0.0632 | 0.2378 | 0.3906 | 0.0013 | 0.0135 | 112 | 0.0057 |
| 2022 | 2022Cranes500 | Cranes | 500 | 0.0985 | 0.3670 | 0.5626 | 0.0018 | 0.0207 | 180 | 0.0089 |
| 2022 | 2022Cranes750 | Cranes | 750 | 0.1661 | 0.6173 | 0.9687 | 0.0030 | 0.0352 | 303 | 0.0150 |
| 2022 | 2022Cranes9999 | Cranes | 9999 | 0.6059 | 2.0738 | 6.3749 | 0.0098 | 0.1504 | 971 | 0.0547 |
| 2022 | 2022Cranes Composite | Cranes Composite | | 0.0798 | 0.3822 | 0.5505 | 0.0014 | 0.0203 | 129 | 0.0072 |
| 2022 | 2022Crawler Tractors50 | Crawler Tractors | 50 | 0.0603 | 0.2677 | 0.1989 | 0.0003 | 0.0123 | 24.9 | 0.0054 |
| 2022 | 2022Crawler Tractors120 | Crawler Tractors | 120 | 0.0731 | 0.4586 | 0.4297 | 0.0008 | 0.0304 | 65.8 | 0.0066 |
| 2022 | 2022Crawler Tractors175 | Crawler Tractors | 175 | 0.0989 | 0.7284 | 0.5941 | 0.0014 | 0.0328 | 121 | 0.0089 |
| 2022 | 2022Crawler Tractors250 | Crawler Tractors | 250 | 0.1065 | 0.3809 | 0.7177 | 0.0019 | 0.0258 | 166 | 0.0096 |
| 2022 | 2022Crawler Tractors500 | Crawler Tractors | 500 | 0.1588 | 0.6271 | 1.0067 | 0.0025 | 0.0374 | 259 | 0.0143 |
| 2022 | 2022Crawler Tractors750 | Crawler Tractors | 750 | 0.2860 | 1.1231 | 1.8570 | 0.0047 | 0.0680 | 465 | 0.0258 |
| 2022 | 2022Crawler Tractors1000 | Crawler Tractors | 1000 | 0.4347 | 1.7108 | 4.7678 | 0.0066 | 0.1216 | 658 | 0.0392 |
| 2022 | 2022Crawler Tractors Composite | Crawler Tractors Composite | | 0.0931 | 0.5163 | 0.5746 | 0.0013 | 0.0310 | 114 | 0.0084 |
| 2022 | 2022Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0616 | 0.3936 | 0.3162 | 0.0006 | 0.0134 | 44.0 | 0.0056 |
| 2022 | 2022Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0600 | 0.5420 | 0.4035 | 0.0010 | 0.0225 | 83.1 | 0.0054 |
| 2022 | 2022Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0952 | 0.9528 | 0.5479 | 0.0019 | 0.0282 | 167 | 0.0086 |
| 2022 | 2022Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1123 | 0.4795 | 0.6546 | 0.0028 | 0.0216 | 245 | 0.0101 |
| 2022 | 2022Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1682 | 0.7020 | 0.9136 | 0.0037 | 0.0319 | 374 | 0.0152 |
| 2022 | 2022Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2652 | 1.1064 | 1.4690 | 0.0059 | 0.0505 | 589 | 0.0239 |
| 2022 | 2022Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6919 | 2.5793 | 7.6191 | 0.0131 | 0.1680 | 1,308 | 0.0624 |
| 2022 | 2022Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0820 | 0.6208 | 0.4911 | 0.0015 | 0.0234 | 132 | 0.0074 |
| 2022 | 2022Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2022 | 2022Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2022 | 2022Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2022 | 2022Excavators50 | Excavators | 50 | 0.0336 | 0.2402 | 0.1748 | 0.0003 | 0.0058 | 25.0 | 0.0030 |
| 2022 | 2022Excavators120 | Excavators | 120 | 0.0512 | 0.4958 | 0.3181 | 0.0009 | 0.0148 | 73.6 | 0.0046 |
| 2022 | 2022Excavators175 | Excavators | 175 | 0.0614 | 0.6636 | 0.2947 | 0.0013 | 0.0145 | 112 | 0.0055 |
| 2022 | 2022Excavators250 | Excavators | 250 | 0.0743 | 0.3243 | 0.3366 | 0.0018 | 0.0116 | 159 | 0.0067 |
| 2022 | 2022Excavators500 | Excavators | 500 | 0.1081 | 0.4540 | 0.4583 | 0.0023 | 0.0166 | 234 | 0.0098 |
| 2022 | 2022Excavators750 | Excavators | 750 | 0.1793 | 0.7525 | 0.7705 | 0.0039 | 0.0277 | 387 | 0.0162 |
| 2022 | 2022Excavators Composite | Excavators Composite | | 0.0648 | 0.5104 | 0.3171 | 0.0013 | 0.0136 | 120 | 0.0059 |
| 2022 | 2022Forklifts50 | Forklifts | 50 | 0.0166 | 0.1368 | 0.0992 | 0.0002 | 0.0026 | 14.7 | 0.0015 |
| 2022 | 2022Forklifts120 | Forklifts | 120 | 0.0194 | 0.2087 | 0.1222 | 0.0004 | 0.0046 | 31.2 | 0.0018 |
| 2022 | 2022Forklifts175 | Forklifts | 175 | 0.0281 | 0.3303 | 0.1276 | 0.0006 | 0.0054 | 56.1 | 0.0025 |
| 2022 | 2022Forklifts250 | Forklifts | 250 | 0.0331 | 0.1548 | 0.1276 | 0.0009 | 0.0039 | 77.1 | 0.0030 |
| 2022 | 2022Forklifts500 | Forklifts | 500 | 0.0474 | 0.2120 | 0.1726 | 0.0011 | 0.0055 | 111 | 0.0043 |
| 2022 | 2022Forklifts Composite | Forklifts Composite | | 0.0274 | 0.2146 | 0.1265 | 0.0006 | 0.0044 | 54.4 | 0.0025 |
| 2022 | 2022Generator Sets15 | Generator Sets | 15 | 0.0113 | 0.0633 | 0.0791 | 0.0002 | 0.0035 | 10.2 | 0.0010 |
| 2022 | 2022Generator Sets25 | Generator Sets | 25 | 0.0220 | 0.0754 | 0.1389 | 0.0002 | 0.0059 | 17.6 | 0.0020 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 2022Generator Sets50 | Generator Sets | 50 | 0.0309 | 0.2089 | 0.2052 | 0.0004 | 0.0079 | 30.6 | 0.0028 |
| 2022 | 2022Generator Sets120 | Generator Sets | 120 | 0.0421 | 0.4606 | 0.3697 | 0.0009 | 0.0188 | 77.9 | 0.0038 |
| 2022 | 2022Generator Sets175 | Generator Sets | 175 | 0.0574 | 0.7315 | 0.4635 | 0.0016 | 0.0206 | 142 | 0.0052 |
| 2022 | 2022Generator Sets250 | Generator Sets | 250 | 0.0654 | 0.3784 | 0.5732 | 0.0024 | 0.0167 | 213 | 0.0059 |
| 2022 | 2022Generator Sets500 | Generator Sets | 500 | 0.0998 | 0.5878 | 0.8334 | 0.0033 | 0.0256 | 337 | 0.0090 |
| 2022 | 2022Generator Sets750 | Generator Sets | 750 | 0.1627 | 0.9489 | 1.3725 | 0.0055 | 0.0419 | 544 | 0.0147 |
| 2022 | 2022Generator Sets9999 | Generator Sets | 9999 | 0.3853 | 1.9364 | 5.9490 | 0.0105 | 0.1195 | 1,049 | 0.0348 |
| 2022 | 2022Generator Sets Composite | Generator Sets Composite | | 0.0340 | 0.2694 | 0.2783 | 0.0007 | 0.0117 | 61.0 | 0.0031 |
| 2022 | 2022Graders50 | Graders | 50 | 0.0474 | 0.2681 | 0.2028 | 0.0004 | 0.0096 | 27.5 | 0.0043 |
| 2022 | 2022Graders120 | Graders | 120 | 0.0635 | 0.5051 | 0.3943 | 0.0009 | 0.0237 | 75.0 | 0.0057 |
| 2022 | 2022Graders175 | Graders | 175 | 0.0794 | 0.7272 | 0.4462 | 0.0014 | 0.0234 | 124 | 0.0072 |
| 2022 | 2022Graders250 | Graders | 250 | 0.0899 | 0.3617 | 0.5278 | 0.0019 | 0.0183 | 172 | 0.0081 |
| 2022 | 2022Graders500 | Graders | 500 | 0.1165 | 0.4796 | 0.6329 | 0.0023 | 0.0231 | 229 | 0.0105 |
| 2022 | 2022Graders750 | Graders | 750 | 0.2474 | 1.0147 | 1.3769 | 0.0049 | 0.0496 | 486 | 0.0223 |
| 2022 | 2022Graders Composite | Graders Composite | | 0.0807 | 0.5732 | 0.4657 | 0.0015 | 0.0218 | 133 | 0.0073 |
| 2022 | 2022Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1304 | 0.6712 | 0.7522 | 0.0011 | 0.0580 | 93.7 | 0.0118 |
| 2022 | 2022Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1306 | 0.7979 | 0.8376 | 0.0015 | 0.0470 | 130 | 0.0118 |
| 2022 | 2022Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.1032 | 0.3410 | 0.7591 | 0.0015 | 0.0294 | 130 | 0.0093 |
| 2022 | 2022Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.4240 | 1.7168 | 3.0614 | 0.0057 | 0.1180 | 568 | 0.0383 |
| 2022 | 2022Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.6473 | 2.6737 | 6.8441 | 0.0082 | 0.1935 | 814 | 0.0584 |
| 2022 | 2022Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1322 | 0.6320 | 0.9188 | 0.0017 | 0.0424 | 151 | 0.0119 |
| 2022 | 2022Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0734 | 0.7537 | 0.3503 | 0.0014 | 0.0176 | 125 | 0.0066 |
| 2022 | 2022Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0836 | 0.3474 | 0.3804 | 0.0019 | 0.0132 | 167 | 0.0075 |
| 2022 | 2022Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1348 | 0.5379 | 0.5724 | 0.0027 | 0.0209 | 272 | 0.0122 |
| 2022 | 2022Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2189 | 0.8725 | 0.9428 | 0.0044 | 0.0342 | 442 | 0.0198 |
| 2022 | 2022Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.3246 | 1.2658 | 3.5349 | 0.0063 | 0.0734 | 625 | 0.0293 |
| 2022 | 2022Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1303 | 0.5447 | 0.6574 | 0.0027 | 0.0216 | 260 | 0.0118 |
| 2022 | 2022Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2022 | 2022Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2022 | 2022Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0284 | 0.2225 | 0.1835 | 0.0004 | 0.0056 | 28.0 | 0.0026 |
| 2022 | 2022Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0440 | 0.5061 | 0.3277 | 0.0009 | 0.0144 | 80.9 | 0.0040 |
| 2022 | 2022Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0460 | 0.5858 | 0.2580 | 0.0012 | 0.0122 | 107 | 0.0041 |
| 2022 | 2022Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0913 | 0.4635 | 0.4587 | 0.0025 | 0.0159 | 254 | 0.0082 |
| 2022 | 2022Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0507 | 0.3488 | 0.2785 | 0.0013 | 0.0106 | 123 | 0.0046 |
| 2022 | 2022Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2022 | 2022Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2022 | 2022Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0360 | 0.2140 | 0.1625 | 0.0003 | 0.0074 | 21.7 | 0.0032 |
| 2022 | 2022Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0516 | 0.4198 | 0.3199 | 0.0007 | 0.0189 | 62.0 | 0.0047 |
| 2022 | 2022Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0623 | 0.5661 | 0.3419 | 0.0011 | 0.0179 | 95.9 | 0.0056 |
| 2022 | 2022Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0701 | 0.2762 | 0.3977 | 0.0015 | 0.0130 | 136 | 0.0063 |
| 2022 | 2022Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1344 | 0.5141 | 0.7082 | 0.0026 | 0.0247 | 265 | 0.0121 |
| 2022 | 2022Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2221 | 0.8474 | 1.1914 | 0.0044 | 0.0411 | 437 | 0.0200 |
| 2022 | 2022Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.3060 | 1.1450 | 3.4169 | 0.0056 | 0.0781 | 560 | 0.0276 |
| 2022 | 2022Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0867 | 0.4464 | 0.5301 | 0.0016 | 0.0199 | 152 | 0.0078 |
| 2022 | 2022Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0496 | 0.2950 | 0.2260 | 0.0004 | 0.0103 | 30.3 | 0.0045 |
| 2022 | 2022Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0499 | 0.4085 | 0.3124 | 0.0007 | 0.0185 | 60.7 | 0.0045 |
| 2022 | 2022Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0785 | 0.7167 | 0.4349 | 0.0014 | 0.0228 | 122 | 0.0071 |
| 2022 | 2022Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0741 | 0.2939 | 0.4252 | 0.0016 | 0.0139 | 145 | 0.0067 |
| 2022 | 2022Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0959 | 0.3697 | 0.5110 | 0.0019 | 0.0178 | 192 | 0.0087 |
| 2022 | 2022Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.4384 | 1.5111 | 4.5177 | 0.0073 | 0.1032 | 741 | 0.0396 |
| 2022 | 2022Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0813 | 0.4378 | 0.5158 | 0.0015 | 0.0191 | 141 | 0.0073 |
| 2022 | 2022Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1424 | 0.0002 | 0.0054 | 18.7 | 0.0020 |
| 2022 | 2022Pavers50 | Pavers | 50 | 0.0718 | 0.2941 | 0.2269 | 0.0004 | 0.0154 | 28.0 | 0.0065 |
| 2022 | 2022Pavers120 | Pavers | 120 | 0.0802 | 0.4756 | 0.4824 | 0.0008 | 0.0357 | 69.2 | 0.0072 |
| 2022 | 2022Pavers175 | Pavers | 175 | 0.1081 | 0.7573 | 0.6894 | 0.0014 | 0.0385 | 128 | 0.0098 |
| 2022 | 2022Pavers250 | Pavers | 250 | 0.1271 | 0.4502 | 0.9303 | 0.0022 | 0.0337 | 194 | 0.0115 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 2022Pavers500 | Pavers | 500 | 0.1447 | 0.5863 | 1.0011 | 0.0023 | 0.0374 | 233 | 0.0131 |
| 2022 | 2022Pavers Composite | Pavers Composite | | 0.0870 | 0.4840 | 0.4750 | 0.0009 | 0.0296 | 77.9 | 0.0078 |
| 2022 | 2022Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2022 | 2022Paving Equipment50 | Paving Equipment | 50 | 0.0598 | 0.2475 | 0.1933 | 0.0003 | 0.0130 | 23.9 | 0.0054 |
| 2022 | 2022Paving Equipment120 | Paving Equipment | 120 | 0.0619 | 0.3722 | 0.3757 | 0.0006 | 0.0279 | 54.5 | 0.0056 |
| 2022 | 2022Paving Equipment175 | Paving Equipment | 175 | 0.0834 | 0.5924 | 0.5361 | 0.0011 | 0.0299 | 101 | 0.0075 |
| 2022 | 2022Paving Equipment250 | Paving Equipment | 250 | 0.0779 | 0.2771 | 0.5769 | 0.0014 | 0.0206 | 122 | 0.0070 |
| 2022 | 2022Paving Equipment Composite | Paving Equipment Composite | | 0.0666 | 0.4042 | 0.4137 | 0.0008 | 0.0261 | 68.9 | 0.0060 |
| 2022 | 2022Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2022 | 2022Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2022 | 2022Pressure Washers15 | Pressure Washers | 15 | 0.0054 | 0.0303 | 0.0379 | 0.0001 | 0.0017 | 4.9 | 0.0005 |
| 2022 | 2022Pressure Washers25 | Pressure Washers | 25 | 0.0089 | 0.0306 | 0.0563 | 0.0001 | 0.0024 | 7.1 | 0.0008 |
| 2022 | 2022Pressure Washers50 | Pressure Washers | 50 | 0.0103 | 0.0831 | 0.0920 | 0.0002 | 0.0030 | 14.3 | 0.0009 |
| 2022 | 2022Pressure Washers120 | Pressure Washers | 120 | 0.0104 | 0.1358 | 0.1094 | 0.0003 | 0.0049 | 24.1 | 0.0009 |
| 2022 | 2022Pressure Washers Composite | Pressure Washers Composite | | 0.0075 | 0.0539 | 0.0606 | 0.0001 | 0.0024 | 9.4 | 0.0007 |
| 2022 | 2022Pumps15 | Pumps | 15 | 0.0093 | 0.0460 | 0.0577 | 0.0001 | 0.0027 | 7.4 | 0.0008 |
| 2022 | 2022Pumps25 | Pumps | 25 | 0.0255 | 0.0834 | 0.1535 | 0.0002 | 0.0067 | 19.5 | 0.0023 |
| 2022 | 2022Pumps50 | Pumps | 50 | 0.0380 | 0.2459 | 0.2331 | 0.0004 | 0.0094 | 34.3 | 0.0034 |
| 2022 | 2022Pumps120 | Pumps | 120 | 0.0449 | 0.4676 | 0.3749 | 0.0009 | 0.0199 | 77.9 | 0.0040 |
| 2022 | 2022Pumps175 | Pumps | 175 | 0.0608 | 0.7328 | 0.4650 | 0.0016 | 0.0214 | 140 | 0.0055 |
| 2022 | 2022Pumps250 | Pumps | 250 | 0.0668 | 0.3640 | 0.5526 | 0.0023 | 0.0165 | 201 | 0.0060 |
| 2022 | 2022Pumps500 | Pumps | 500 | 0.1105 | 0.6094 | 0.8662 | 0.0034 | 0.0274 | 345 | 0.0100 |
| 2022 | 2022Pumps750 | Pumps | 750 | 0.1841 | 1.0074 | 1.4611 | 0.0057 | 0.0458 | 571 | 0.0166 |
| 2022 | 2022Pumps9999 | Pumps | 9999 | 0.5293 | 2.5333 | 7.7698 | 0.0136 | 0.1590 | 1,355 | 0.0478 |
| 2022 | 2022Pumps Composite | Pumps Composite | | 0.0322 | 0.2640 | 0.2467 | 0.0006 | 0.0114 | 49.6 | 0.0029 |
| 2022 | 2022Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2022 | 2022Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2022 | 2022Rollers50 | Rollers | 50 | 0.0444 | 0.2347 | 0.1923 | 0.0003 | 0.0101 | 26.0 | 0.0040 |
| 2022 | 2022Rollers120 | Rollers | 120 | 0.0486 | 0.3836 | 0.3270 | 0.0007 | 0.0207 | 59.0 | 0.0044 |
| 2022 | 2022Rollers175 | Rollers | 175 | 0.0669 | 0.6103 | 0.4265 | 0.0012 | 0.0225 | 108 | 0.0060 |
| 2022 | 2022Rollers250 | Rollers | 250 | 0.0760 | 0.3121 | 0.5217 | 0.0017 | 0.0180 | 153 | 0.0069 |
| 2022 | 2022Rollers500 | Rollers | 500 | 0.1052 | 0.4391 | 0.6689 | 0.0022 | 0.0243 | 219 | 0.0095 |
| 2022 | 2022Rollers Composite | Rollers Composite | | 0.0500 | 0.3799 | 0.3198 | 0.0008 | 0.0181 | 67.0 | 0.0045 |
| 2022 | 2022Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0447 | 0.3102 | 0.2394 | 0.0004 | 0.0088 | 33.9 | 0.0040 |
| 2022 | 2022Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0433 | 0.4122 | 0.2827 | 0.0007 | 0.0144 | 62.4 | 0.0039 |
| 2022 | 2022Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0689 | 0.7228 | 0.3608 | 0.0014 | 0.0184 | 125 | 0.0062 |
| 2022 | 2022Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0786 | 0.3401 | 0.4010 | 0.0019 | 0.0137 | 171 | 0.0071 |
| 2022 | 2022Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1164 | 0.4879 | 0.5561 | 0.0025 | 0.0200 | 257 | 0.0105 |
| 2022 | 2022Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0467 | 0.4445 | 0.2924 | 0.0008 | 0.0148 | 70.3 | 0.0042 |
| 2022 | 2022Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1359 | 0.8073 | 0.8630 | 0.0015 | 0.0485 | 129 | 0.0123 |
| 2022 | 2022Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1536 | 0.4976 | 1.1128 | 0.0021 | 0.0437 | 183 | 0.0139 |
| 2022 | 2022Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.2081 | 0.8431 | 1.4541 | 0.0026 | 0.0573 | 265 | 0.0188 |
| 2022 | 2022Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3144 | 1.2669 | 2.2402 | 0.0040 | 0.0873 | 399 | 0.0284 |
| 2022 | 2022Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4949 | 2.0395 | 5.1053 | 0.0060 | 0.1466 | 592 | 0.0447 |
| 2022 | 2022Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1919 | 0.7353 | 1.3612 | 0.0025 | 0.0536 | 239 | 0.0173 |
| 2022 | 2022Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2022 | 2022Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0515 | 0.2990 | 0.2280 | 0.0004 | 0.0105 | 31.1 | 0.0046 |
| 2022 | 2022Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0482 | 0.3946 | 0.3036 | 0.0007 | 0.0178 | 58.9 | 0.0043 |
| 2022 | 2022Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0662 | 0.6207 | 0.3719 | 0.0012 | 0.0194 | 106 | 0.0060 |
| 2022 | 2022Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0763 | 0.3102 | 0.4423 | 0.0017 | 0.0154 | 149 | 0.0069 |
| 2022 | 2022Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1181 | 0.4837 | 0.6348 | 0.0023 | 0.0232 | 237 | 0.0107 |
| 2022 | 2022Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2426 | 0.9905 | 1.3313 | 0.0049 | 0.0481 | 486 | 0.0219 |
| 2022 | 2022Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.3127 | 1.2515 | 3.6383 | 0.0060 | 0.0813 | 594 | 0.0282 |
| 2022 | 2022Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0661 | 0.4359 | 0.3849 | 0.0012 | 0.0181 | 109 | 0.0060 |
| 2022 | 2022Scrapers120 | Scrapers | 120 | 0.1071 | 0.6549 | 0.6300 | 0.0011 | 0.0454 | 93.9 | 0.0097 |
| 2022 | 2022Scrapers175 | Scrapers | 175 | 0.1235 | 0.8895 | 0.7529 | 0.0017 | 0.0417 | 148 | 0.0111 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 2022Scrapers250 | Scrapers | 250 | 0.1369 | 0.4844 | 0.9425 | 0.0024 | 0.0340 | 209 | 0.0123 |
| 2022 | 2022Scrapers500 | Scrapers | 500 | 0.2003 | 0.7920 | 1.2973 | 0.0032 | 0.0483 | 321 | 0.0181 |
| 2022 | 2022Scrapers750 | Scrapers | 750 | 0.3476 | 1.3669 | 2.3064 | 0.0056 | 0.0848 | 555 | 0.0314 |
| 2022 | 2022Scrapers Composite | Scrapers Composite | | 0.1724 | 0.7579 | 1.1177 | 0.0027 | 0.0447 | 262 | 0.0156 |
| 2022 | 2022Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2022 | 2022Signal Boards50 | Signal Boards | 50 | 0.0417 | 0.2755 | 0.2471 | 0.0005 | 0.0098 | 36.2 | 0.0038 |
| 2022 | 2022Signal Boards120 | Signal Boards | 120 | 0.0477 | 0.4918 | 0.3767 | 0.0009 | 0.0200 | 80.2 | 0.0043 |
| 2022 | 2022Signal Boards175 | Signal Boards | 175 | 0.0707 | 0.8279 | 0.4898 | 0.0017 | 0.0235 | 155 | 0.0064 |
| 2022 | 2022Signal Boards250 | Signal Boards | 250 | 0.0919 | 0.4710 | 0.6627 | 0.0029 | 0.0206 | 255 | 0.0083 |
| 2022 | 2022Signal Boards Composite | Signal Boards Composite | | 0.0121 | 0.0910 | 0.0818 | 0.0002 | 0.0036 | 16.7 | 0.0011 |
| 2022 | 2022Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0168 | 0.0570 | 0.1062 | 0.0002 | 0.0042 | 13.8 | 0.0015 |
| 2022 | 2022Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0211 | 0.1991 | 0.1551 | 0.0003 | 0.0029 | 25.5 | 0.0019 |
| 2022 | 2022Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0197 | 0.2669 | 0.1446 | 0.0005 | 0.0043 | 42.8 | 0.0018 |
| 2022 | 2022Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0204 | 0.2114 | 0.1485 | 0.0004 | 0.0034 | 30.3 | 0.0018 |
| 2022 | 2022Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0221 | 0.1150 | 0.1008 | 0.0002 | 0.0051 | 14.1 | 0.0020 |
| 2022 | 2022Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0484 | 0.3991 | 0.3507 | 0.0007 | 0.0215 | 63.8 | 0.0044 |
| 2022 | 2022Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0474 | 0.4653 | 0.3377 | 0.0010 | 0.0169 | 85.8 | 0.0043 |
| 2022 | 2022Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0585 | 0.2682 | 0.4607 | 0.0015 | 0.0154 | 135 | 0.0053 |
| 2022 | 2022Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0915 | 0.4491 | 0.6786 | 0.0022 | 0.0236 | 221 | 0.0083 |
| 2022 | 2022Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1447 | 0.7042 | 1.0950 | 0.0035 | 0.0376 | 347 | 0.0131 |
| 2022 | 2022Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0739 | 0.3778 | 0.5368 | 0.0017 | 0.0195 | 166 | 0.0067 |
| 2022 | 2022Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2022 | 2022Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2022 | 2022Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0362 | 0.2815 | 0.2173 | 0.0004 | 0.0067 | 31.6 | 0.0033 |
| 2022 | 2022Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0475 | 0.4919 | 0.3133 | 0.0009 | 0.0141 | 75.0 | 0.0043 |
| 2022 | 2022Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0716 | 0.8013 | 0.3643 | 0.0016 | 0.0169 | 139 | 0.0065 |
| 2022 | 2022Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0696 | 0.3182 | 0.3224 | 0.0018 | 0.0101 | 162 | 0.0063 |
| 2022 | 2022Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0498 | 0.4867 | 0.2947 | 0.0009 | 0.0124 | 78.5 | 0.0045 |
| 2022 | 2022Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2022 | 2022Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0354 | 0.2713 | 0.2045 | 0.0004 | 0.0062 | 30.3 | 0.0032 |
| 2022 | 2022Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0320 | 0.3388 | 0.2113 | 0.0006 | 0.0090 | 51.7 | 0.0029 |
| 2022 | 2022Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0499 | 0.5840 | 0.2431 | 0.0011 | 0.0116 | 101 | 0.0045 |
| 2022 | 2022Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0728 | 0.3417 | 0.3287 | 0.0019 | 0.0113 | 172 | 0.0066 |
| 2022 | 2022Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1447 | 0.6562 | 0.6144 | 0.0039 | 0.0221 | 345 | 0.0131 |
| 2022 | 2022Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2170 | 0.9841 | 0.9320 | 0.0058 | 0.0334 | 517 | 0.0196 |
| 2022 | 2022Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0384 | 0.3599 | 0.2302 | 0.0008 | 0.0095 | 66.8 | 0.0035 |
| 2022 | 2022Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2022 | 2022Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2022 | 2022Trenchers50 | Trenchers | 50 | 0.0856 | 0.3361 | 0.2658 | 0.0004 | 0.0185 | 32.9 | 0.0077 |
| 2022 | 2022Trenchers120 | Trenchers | 120 | 0.0751 | 0.4397 | 0.4624 | 0.0008 | 0.0344 | 64.9 | 0.0068 |
| 2022 | 2022Trenchers175 | Trenchers | 175 | 0.1201 | 0.8361 | 0.7981 | 0.0016 | 0.0442 | 144 | 0.0108 |
| 2022 | 2022Trenchers250 | Trenchers | 250 | 0.1441 | 0.5202 | 1.1070 | 0.0025 | 0.0407 | 223 | 0.0130 |
| 2022 | 2022Trenchers500 | Trenchers | 500 | 0.1899 | 0.8063 | 1.3903 | 0.0031 | 0.0523 | 311 | 0.0171 |
| 2022 | 2022Trenchers750 | Trenchers | 750 | 0.3599 | 1.5183 | 2.6930 | 0.0059 | 0.0999 | 587 | 0.0325 |
| 2022 | 2022Trenchers Composite | Trenchers Composite | | 0.0819 | 0.4186 | 0.4094 | 0.0007 | 0.0284 | 58.7 | 0.0074 |
| 2022 | 2022Welders15 | Welders | 15 | 0.0078 | 0.0385 | 0.0483 | 0.0001 | 0.0022 | 6.2 | 0.0007 |
| 2022 | 2022Welders25 | Welders | 25 | 0.0147 | 0.0483 | 0.0889 | 0.0001 | 0.0039 | 11.3 | 0.0013 |
| 2022 | 2022Welders50 | Welders | 50 | 0.0354 | 0.2134 | 0.1836 | 0.0003 | 0.0082 | 26.0 | 0.0032 |
| 2022 | 2022Welders120 | Welders | 120 | 0.0270 | 0.2486 | 0.1970 | 0.0005 | 0.0114 | 39.5 | 0.0024 |
| 2022 | 2022Welders175 | Welders | 175 | 0.0517 | 0.5385 | 0.3390 | 0.0011 | 0.0171 | 98.2 | 0.0047 |
| 2022 | 2022Welders250 | Welders | 250 | 0.0489 | 0.2256 | 0.3404 | 0.0013 | 0.0108 | 119 | 0.0044 |
| 2022 | 2022Welders500 | Welders | 500 | 0.0671 | 0.3068 | 0.4355 | 0.0016 | 0.0147 | 168 | 0.0061 |
| 2022 | 2022Welders Composite | Welders Composite | | 0.0260 | 0.1773 | 0.1557 | 0.0003 | 0.0078 | 25.6 | 0.0023 |
| 2023 | 2023Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2023 | 2023Aerial Lifts25 | Aerial Lifts | 25 | 0.0133 | 0.0452 | 0.0842 | 0.0001 | 0.0033 | 11.0 | 0.0012 |
| 2023 | 2023Aerial Lifts50 | Aerial Lifts | 50 | 0.0196 | 0.1373 | 0.1289 | 0.0003 | 0.0046 | 19.6 | 0.0018 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Aerial Lifts120 | Aerial Lifts | 120 | 0.0201 | 0.2271 | 0.1697 | 0.0004 | 0.0084 | 38.1 | 0.0018 |
| 2023 | 2023Aerial Lifts500 | Aerial Lifts | 500 | 0.0637 | 0.3732 | 0.4746 | 0.0021 | 0.0146 | 213 | 0.0058 |
| 2023 | 2023Aerial Lifts750 | Aerial Lifts | 750 | 0.1160 | 0.6746 | 0.8754 | 0.0039 | 0.0268 | 385 | 0.0105 |
| 2023 | 2023Aerial Lifts Composite | Aerial Lifts Composite | | 0.0208 | 0.1658 | 0.1525 | 0.0004 | 0.0062 | 34.7 | 0.0019 |
| 2023 | 2023Air Compressors15 | Air Compressors | 15 | 0.0089 | 0.0446 | 0.0555 | 0.0001 | 0.0025 | 7.2 | 0.0008 |
| 2023 | 2023Air Compressors25 | Air Compressors | 25 | 0.0186 | 0.0613 | 0.1132 | 0.0002 | 0.0048 | 14.4 | 0.0017 |
| 2023 | 2023Air Compressors50 | Air Compressors | 50 | 0.0301 | 0.1936 | 0.1563 | 0.0003 | 0.0063 | 22.3 | 0.0027 |
| 2023 | 2023Air Compressors120 | Air Compressors | 120 | 0.0325 | 0.3027 | 0.2194 | 0.0006 | 0.0121 | 47.0 | 0.0029 |
| 2023 | 2023Air Compressors175 | Air Compressors | 175 | 0.0478 | 0.4985 | 0.2761 | 0.0010 | 0.0141 | 88.5 | 0.0043 |
| 2023 | 2023Air Compressors250 | Air Compressors | 250 | 0.0567 | 0.2542 | 0.3336 | 0.0015 | 0.0108 | 131 | 0.0051 |
| 2023 | 2023Air Compressors500 | Air Compressors | 500 | 0.0981 | 0.4312 | 0.5407 | 0.0023 | 0.0184 | 232 | 0.0089 |
| 2023 | 2023Air Compressors750 | Air Compressors | 750 | 0.1520 | 0.6663 | 0.8527 | 0.0036 | 0.0288 | 358 | 0.0137 |
| 2023 | 2023Air Compressors1000 | Air Compressors | 1000 | 0.2215 | 0.9472 | 2.7762 | 0.0049 | 0.0592 | 486 | 0.0200 |
| 2023 | 2023Air Compressors Composite | Air Compressors Composite | | 0.0390 | 0.3035 | 0.2459 | 0.0007 | 0.0119 | 63.6 | 0.0035 |
| 2023 | 2023Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2023 | 2023Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2023 | 2023Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0191 | 0.2200 | 0.1672 | 0.0004 | 0.0010 | 31.0 | 0.0017 |
| 2023 | 2023Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0256 | 0.4660 | 0.2018 | 0.0009 | 0.0023 | 77.1 | 0.0023 |
| 2023 | 2023Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0337 | 0.7541 | 0.0966 | 0.0016 | 0.0033 | 141 | 0.0030 |
| 2023 | 2023Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0432 | 0.3426 | 0.1058 | 0.0021 | 0.0038 | 188 | 0.0039 |
| 2023 | 2023Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0716 | 0.5512 | 0.1739 | 0.0031 | 0.0062 | 311 | 0.0065 |
| 2023 | 2023Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1414 | 1.0890 | 0.3438 | 0.0062 | 0.0123 | 615 | 0.0128 |
| 2023 | 2023Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2174 | 1.6434 | 3.9139 | 0.0093 | 0.0395 | 928 | 0.0196 |
| 2023 | 2023Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0436 | 0.5007 | 0.2949 | 0.0017 | 0.0045 | 165 | 0.0039 |
| 2023 | 2023Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2023 | 2023Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0216 | 0.0728 | 0.1354 | 0.0002 | 0.0053 | 17.6 | 0.0019 |
| 2023 | 2023Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2023 | 2023Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2023 | 2023Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0322 | 0.2324 | 0.2028 | 0.0004 | 0.0072 | 30.2 | 0.0029 |
| 2023 | 2023Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0418 | 0.4576 | 0.3234 | 0.0009 | 0.0162 | 74.1 | 0.0038 |
| 2023 | 2023Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0707 | 0.8662 | 0.4509 | 0.0018 | 0.0219 | 160 | 0.0064 |
| 2023 | 2023Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0382 | 0.3728 | 0.2767 | 0.0007 | 0.0127 | 58.5 | 0.0034 |
| 2023 | 2023Cranes50 | Cranes | 50 | 0.0402 | 0.2305 | 0.1733 | 0.0003 | 0.0082 | 23.2 | 0.0036 |
| 2023 | 2023Cranes120 | Cranes | 120 | 0.0426 | 0.3401 | 0.2642 | 0.0006 | 0.0158 | 50.1 | 0.0038 |
| 2023 | 2023Cranes175 | Cranes | 175 | 0.0522 | 0.4746 | 0.2894 | 0.0009 | 0.0153 | 80.3 | 0.0047 |
| 2023 | 2023Cranes250 | Cranes | 250 | 0.0600 | 0.2354 | 0.3458 | 0.0013 | 0.0120 | 112 | 0.0054 |
| 2023 | 2023Cranes500 | Cranes | 500 | 0.0940 | 0.3610 | 0.5013 | 0.0018 | 0.0185 | 180 | 0.0085 |
| 2023 | 2023Cranes750 | Cranes | 750 | 0.1583 | 0.6073 | 0.8613 | 0.0030 | 0.0314 | 303 | 0.0143 |
| 2023 | 2023Cranes9999 | Cranes | 9999 | 0.5757 | 2.0307 | 6.0792 | 0.0098 | 0.1373 | 971 | 0.0519 |
| 2023 | 2023Cranes Composite | Cranes Composite | | 0.0754 | 0.3786 | 0.5028 | 0.0014 | 0.0181 | 129 | 0.0068 |
| 2023 | 2023Crawler Tractors50 | Crawler Tractors | 50 | 0.0560 | 0.2636 | 0.1936 | 0.0003 | 0.0111 | 24.9 | 0.0051 |
| 2023 | 2023Crawler Tractors120 | Crawler Tractors | 120 | 0.0687 | 0.4568 | 0.4030 | 0.0008 | 0.0274 | 65.8 | 0.0062 |
| 2023 | 2023Crawler Tractors175 | Crawler Tractors | 175 | 0.0929 | 0.7277 | 0.5402 | 0.0014 | 0.0297 | 121 | 0.0084 |
| 2023 | 2023Crawler Tractors250 | Crawler Tractors | 250 | 0.1013 | 0.3749 | 0.6513 | 0.0019 | 0.0233 | 166 | 0.0091 |
| 2023 | 2023Crawler Tractors500 | Crawler Tractors | 500 | 0.1515 | 0.6117 | 0.9142 | 0.0025 | 0.0339 | 259 | 0.0137 |
| 2023 | 2023Crawler Tractors750 | Crawler Tractors | 750 | 0.2728 | 1.0957 | 1.6867 | 0.0047 | 0.0617 | 465 | 0.0246 |
| 2023 | 2023Crawler Tractors1000 | Crawler Tractors | 1000 | 0.4130 | 1.6547 | 4.5686 | 0.0066 | 0.1123 | 658 | 0.0373 |
| 2023 | 2023Crawler Tractors Composite | Crawler Tractors Composite | | 0.0879 | 0.5125 | 0.5291 | 0.0013 | 0.0280 | 114 | 0.0079 |
| 2023 | 2023Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0573 | 0.3903 | 0.3069 | 0.0006 | 0.0114 | 44.0 | 0.0052 |
| 2023 | 2023Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0564 | 0.5413 | 0.3734 | 0.0010 | 0.0193 | 83.1 | 0.0051 |
| 2023 | 2023Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0897 | 0.9538 | 0.4869 | 0.0019 | 0.0245 | 167 | 0.0081 |
| 2023 | 2023Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1068 | 0.4783 | 0.5727 | 0.0028 | 0.0186 | 245 | 0.0096 |
| 2023 | 2023Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1605 | 0.7002 | 0.8070 | 0.0037 | 0.0276 | 374 | 0.0145 |
| 2023 | 2023Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2534 | 1.1039 | 1.2978 | 0.0059 | 0.0437 | 589 | 0.0229 |
| 2023 | 2023Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6617 | 2.5491 | 7.2745 | 0.0131 | 0.1522 | 1,308 | 0.0597 |
| 2023 | 2023Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0773 | 0.6199 | 0.4479 | 0.0015 | 0.0201 | 132 | 0.0070 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2023 | 2023Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2023 | 2023Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2023 | 2023Excavators50 | Excavators | 50 | 0.0320 | 0.2387 | 0.1699 | 0.0003 | 0.0049 | 25.0 | 0.0029 |
| 2023 | 2023Excavators120 | Excavators | 120 | 0.0487 | 0.4952 | 0.2967 | 0.0009 | 0.0126 | 73.6 | 0.0044 |
| 2023 | 2023Excavators175 | Excavators | 175 | 0.0578 | 0.6636 | 0.2573 | 0.0013 | 0.0125 | 112 | 0.0052 |
| 2023 | 2023Excavators250 | Excavators | 250 | 0.0707 | 0.3230 | 0.2915 | 0.0018 | 0.0100 | 159 | 0.0064 |
| 2023 | 2023Excavators500 | Excavators | 500 | 0.1031 | 0.4522 | 0.4014 | 0.0023 | 0.0144 | 234 | 0.0093 |
| 2023 | 2023Excavators750 | Excavators | 750 | 0.1710 | 0.7495 | 0.6744 | 0.0039 | 0.0240 | 387 | 0.0154 |
| 2023 | 2023Excavators Composite | Excavators Composite | | 0.0615 | 0.5097 | 0.2821 | 0.0013 | 0.0117 | 120 | 0.0055 |
| 2023 | 2023Forklifts50 | Forklifts | 50 | 0.0159 | 0.1363 | 0.0954 | 0.0002 | 0.0020 | 14.7 | 0.0014 |
| 2023 | 2023Forklifts120 | Forklifts | 120 | 0.0183 | 0.2086 | 0.1134 | 0.0004 | 0.0035 | 31.2 | 0.0017 |
| 2023 | 2023Forklifts175 | Forklifts | 175 | 0.0260 | 0.3305 | 0.1074 | 0.0006 | 0.0040 | 56.1 | 0.0023 |
| 2023 | 2023Forklifts250 | Forklifts | 250 | 0.0315 | 0.1549 | 0.1069 | 0.0009 | 0.0033 | 77.1 | 0.0028 |
| 2023 | 2023Forklifts500 | Forklifts | 500 | 0.0451 | 0.2120 | 0.1455 | 0.0011 | 0.0047 | 111 | 0.0041 |
| 2023 | 2023Forklifts Composite | Forklifts Composite | | 0.0259 | 0.2146 | 0.1108 | 0.0006 | 0.0035 | 54.4 | 0.0023 |
| 2023 | 2023Generator Sets15 | Generator Sets | 15 | 0.0111 | 0.0631 | 0.0782 | 0.0002 | 0.0034 | 10.2 | 0.0010 |
| 2023 | 2023Generator Sets25 | Generator Sets | 25 | 0.0218 | 0.0748 | 0.1381 | 0.0002 | 0.0057 | 17.6 | 0.0020 |
| 2023 | 2023Generator Sets50 | Generator Sets | 50 | 0.0284 | 0.2068 | 0.1992 | 0.0004 | 0.0068 | 30.6 | 0.0026 |
| 2023 | 2023Generator Sets120 | Generator Sets | 120 | 0.0390 | 0.4597 | 0.3429 | 0.0009 | 0.0164 | 77.9 | 0.0035 |
| 2023 | 2023Generator Sets175 | Generator Sets | 175 | 0.0536 | 0.7319 | 0.4144 | 0.0016 | 0.0181 | 142 | 0.0048 |
| 2023 | 2023Generator Sets250 | Generator Sets | 250 | 0.0620 | 0.3769 | 0.5050 | 0.0024 | 0.0146 | 213 | 0.0056 |
| 2023 | 2023Generator Sets500 | Generator Sets | 500 | 0.0951 | 0.5855 | 0.7401 | 0.0033 | 0.0225 | 337 | 0.0086 |
| 2023 | 2023Generator Sets750 | Generator Sets | 750 | 0.1548 | 0.9452 | 1.2186 | 0.0055 | 0.0367 | 544 | 0.0140 |
| 2023 | 2023Generator Sets9999 | Generator Sets | 9999 | 0.3628 | 1.9093 | 5.6803 | 0.0105 | 0.1086 | 1,049 | 0.0327 |
| 2023 | 2023Generator Sets Composite | Generator Sets Composite | | 0.0321 | 0.2683 | 0.2612 | 0.0007 | 0.0103 | 61.0 | 0.0029 |
| 2023 | 2023Graders50 | Graders | 50 | 0.0438 | 0.2649 | 0.1973 | 0.0004 | 0.0083 | 27.5 | 0.0040 |
| 2023 | 2023Graders120 | Graders | 120 | 0.0592 | 0.5035 | 0.3674 | 0.0009 | 0.0205 | 75.0 | 0.0053 |
| 2023 | 2023Graders175 | Graders | 175 | 0.0740 | 0.7268 | 0.3960 | 0.0014 | 0.0205 | 124 | 0.0067 |
| 2023 | 2023Graders250 | Graders | 250 | 0.0856 | 0.3591 | 0.4670 | 0.0019 | 0.0163 | 172 | 0.0077 |
| 2023 | 2023Graders500 | Graders | 500 | 0.1113 | 0.4726 | 0.5631 | 0.0023 | 0.0207 | 229 | 0.0100 |
| 2023 | 2023Graders750 | Graders | 750 | 0.2361 | 0.9999 | 1.2212 | 0.0049 | 0.0443 | 486 | 0.0213 |
| 2023 | 2023Graders Composite | Graders Composite | | 0.0758 | 0.5718 | 0.4156 | 0.0015 | 0.0191 | 133 | 0.0068 |
| 2023 | 2023Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1235 | 0.6678 | 0.7110 | 0.0011 | 0.0536 | 93.7 | 0.0111 |
| 2023 | 2023Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1237 | 0.7961 | 0.7762 | 0.0015 | 0.0435 | 130 | 0.0112 |
| 2023 | 2023Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0980 | 0.3323 | 0.7020 | 0.0015 | 0.0269 | 130 | 0.0088 |
| 2023 | 2023Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.4042 | 1.6484 | 2.8322 | 0.0057 | 0.1085 | 568 | 0.0365 |
| 2023 | 2023Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.6171 | 2.5586 | 6.5771 | 0.0082 | 0.1808 | 814 | 0.0557 |
| 2023 | 2023Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1255 | 0.6238 | 0.8516 | 0.0017 | 0.0391 | 151 | 0.0113 |
| 2023 | 2023Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0692 | 0.7536 | 0.3068 | 0.0014 | 0.0152 | 125 | 0.0062 |
| 2023 | 2023Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0796 | 0.3458 | 0.3302 | 0.0019 | 0.0114 | 167 | 0.0072 |
| 2023 | 2023Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1287 | 0.5355 | 0.5023 | 0.0027 | 0.0182 | 272 | 0.0116 |
| 2023 | 2023Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2090 | 0.8685 | 0.8270 | 0.0044 | 0.0297 | 442 | 0.0189 |
| 2023 | 2023Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.3089 | 1.2561 | 3.3947 | 0.0063 | 0.0663 | 625 | 0.0279 |
| 2023 | 2023Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1243 | 0.5422 | 0.5881 | 0.0027 | 0.0188 | 260 | 0.0112 |
| 2023 | 2023Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2023 | 2023Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2023 | 2023Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0267 | 0.2209 | 0.1783 | 0.0004 | 0.0047 | 28.0 | 0.0024 |
| 2023 | 2023Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0416 | 0.5054 | 0.3051 | 0.0009 | 0.0122 | 80.9 | 0.0038 |
| 2023 | 2023Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0432 | 0.5857 | 0.2259 | 0.0012 | 0.0105 | 107 | 0.0039 |
| 2023 | 2023Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0869 | 0.4622 | 0.4007 | 0.0025 | 0.0137 | 254 | 0.0078 |
| 2023 | 2023Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0483 | 0.3482 | 0.2497 | 0.0013 | 0.0092 | 123 | 0.0044 |
| 2023 | 2023Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2023 | 2023Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2023 | 2023Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0336 | 0.2124 | 0.1578 | 0.0003 | 0.0063 | 21.7 | 0.0030 |
| 2023 | 2023Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0486 | 0.4194 | 0.2962 | 0.0007 | 0.0164 | 62.0 | 0.0044 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0585 | 0.5669 | 0.3049 | 0.0011 | 0.0156 | 95.9 | 0.0053 |
| 2023 | 2023Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0668 | 0.2755 | 0.3496 | 0.0015 | 0.0113 | 136 | 0.0060 |
| 2023 | 2023Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1284 | 0.5127 | 0.6281 | 0.0026 | 0.0215 | 265 | 0.0116 |
| 2023 | 2023Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2122 | 0.8450 | 1.0564 | 0.0044 | 0.0358 | 437 | 0.0191 |
| 2023 | 2023Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2905 | 1.1303 | 3.2598 | 0.0056 | 0.0709 | 560 | 0.0262 |
| 2023 | 2023Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0824 | 0.4454 | 0.4807 | 0.0016 | 0.0174 | 152 | 0.0074 |
| 2023 | 2023Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0463 | 0.2927 | 0.2194 | 0.0004 | 0.0088 | 30.3 | 0.0042 |
| 2023 | 2023Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0470 | 0.4081 | 0.2892 | 0.0007 | 0.0160 | 60.7 | 0.0042 |
| 2023 | 2023Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0738 | 0.7178 | 0.3878 | 0.0014 | 0.0199 | 122 | 0.0067 |
| 2023 | 2023Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0706 | 0.2931 | 0.3737 | 0.0016 | 0.0121 | 145 | 0.0064 |
| 2023 | 2023Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0916 | 0.3687 | 0.4532 | 0.0019 | 0.0155 | 192 | 0.0083 |
| 2023 | 2023Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.4172 | 1.4917 | 4.3096 | 0.0073 | 0.0937 | 741 | 0.0376 |
| 2023 | 2023Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0771 | 0.4369 | 0.4671 | 0.0015 | 0.0167 | 141 | 0.0070 |
| 2023 | 2023Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1423 | 0.0002 | 0.0054 | 18.7 | 0.0020 |
| 2023 | 2023Pavers50 | Pavers | 50 | 0.0666 | 0.2890 | 0.2210 | 0.0004 | 0.0140 | 28.0 | 0.0060 |
| 2023 | 2023Pavers120 | Pavers | 120 | 0.0753 | 0.4735 | 0.4531 | 0.0008 | 0.0323 | 69.2 | 0.0068 |
| 2023 | 2023Pavers175 | Pavers | 175 | 0.1017 | 0.7562 | 0.6305 | 0.0014 | 0.0350 | 128 | 0.0092 |
| 2023 | 2023Pavers250 | Pavers | 250 | 0.1208 | 0.4419 | 0.8488 | 0.0022 | 0.0307 | 194 | 0.0109 |
| 2023 | 2023Pavers500 | Pavers | 500 | 0.1380 | 0.5680 | 0.9135 | 0.0023 | 0.0341 | 233 | 0.0125 |
| 2023 | 2023Pavers Composite | Pavers Composite | | 0.0815 | 0.4805 | 0.4432 | 0.0009 | 0.0269 | 77.9 | 0.0074 |
| 2023 | 2023Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2023 | 2023Paving Equipment50 | Paving Equipment | 50 | 0.0551 | 0.2431 | 0.1882 | 0.0003 | 0.0118 | 23.9 | 0.0050 |
| 2023 | 2023Paving Equipment120 | Paving Equipment | 120 | 0.0578 | 0.3703 | 0.3520 | 0.0006 | 0.0251 | 54.5 | 0.0052 |
| 2023 | 2023Paving Equipment175 | Paving Equipment | 175 | 0.0782 | 0.5915 | 0.4884 | 0.0011 | 0.0271 | 101 | 0.0071 |
| 2023 | 2023Paving Equipment250 | Paving Equipment | 250 | 0.0741 | 0.2724 | 0.5241 | 0.0014 | 0.0187 | 122 | 0.0067 |
| 2023 | 2023Paving Equipment Composite | Paving Equipment Composite | | 0.0624 | 0.4024 | 0.3832 | 0.0008 | 0.0236 | 68.9 | 0.0056 |
| 2023 | 2023Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2023 | 2023Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2023 | 2023Pressure Washers15 | Pressure Washers | 15 | 0.0053 | 0.0302 | 0.0375 | 0.0001 | 0.0016 | 4.9 | 0.0005 |
| 2023 | 2023Pressure Washers25 | Pressure Washers | 25 | 0.0088 | 0.0303 | 0.0560 | 0.0001 | 0.0023 | 7.1 | 0.0008 |
| 2023 | 2023Pressure Washers50 | Pressure Washers | 50 | 0.0093 | 0.0823 | 0.0893 | 0.0002 | 0.0026 | 14.3 | 0.0008 |
| 2023 | 2023Pressure Washers120 | Pressure Washers | 120 | 0.0096 | 0.1355 | 0.1015 | 0.0003 | 0.0042 | 24.1 | 0.0009 |
| 2023 | 2023Pressure Washers Composite | Pressure Washers Composite | | 0.0072 | 0.0536 | 0.0589 | 0.0001 | 0.0022 | 9.4 | 0.0006 |
| 2023 | 2023Pumps15 | Pumps | 15 | 0.0091 | 0.0459 | 0.0571 | 0.0001 | 0.0026 | 7.4 | 0.0008 |
| 2023 | 2023Pumps25 | Pumps | 25 | 0.0251 | 0.0827 | 0.1527 | 0.0002 | 0.0064 | 19.5 | 0.0023 |
| 2023 | 2023Pumps50 | Pumps | 50 | 0.0350 | 0.2434 | 0.2263 | 0.0004 | 0.0081 | 34.3 | 0.0032 |
| 2023 | 2023Pumps120 | Pumps | 120 | 0.0417 | 0.4668 | 0.3476 | 0.0009 | 0.0174 | 77.9 | 0.0038 |
| 2023 | 2023Pumps175 | Pumps | 175 | 0.0569 | 0.7333 | 0.4157 | 0.0016 | 0.0189 | 140 | 0.0051 |
| 2023 | 2023Pumps250 | Pumps | 250 | 0.0635 | 0.3626 | 0.4870 | 0.0023 | 0.0145 | 201 | 0.0057 |
| 2023 | 2023Pumps500 | Pumps | 500 | 0.1054 | 0.6070 | 0.7693 | 0.0034 | 0.0240 | 345 | 0.0095 |
| 2023 | 2023Pumps750 | Pumps | 750 | 0.1755 | 1.0035 | 1.2976 | 0.0057 | 0.0401 | 571 | 0.0158 |
| 2023 | 2023Pumps9999 | Pumps | 9999 | 0.5003 | 2.4976 | 7.4174 | 0.0136 | 0.1447 | 1,355 | 0.0451 |
| 2023 | 2023Pumps Composite | Pumps Composite | | 0.0302 | 0.2631 | 0.2319 | 0.0006 | 0.0101 | 49.6 | 0.0027 |
| 2023 | 2023Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2023 | 2023Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2023 | 2023Rollers50 | Rollers | 50 | 0.0404 | 0.2311 | 0.1870 | 0.0003 | 0.0088 | 26.0 | 0.0036 |
| 2023 | 2023Rollers120 | Rollers | 120 | 0.0449 | 0.3822 | 0.3039 | 0.0007 | 0.0180 | 59.0 | 0.0041 |
| 2023 | 2023Rollers175 | Rollers | 175 | 0.0625 | 0.6100 | 0.3806 | 0.0012 | 0.0199 | 108 | 0.0056 |
| 2023 | 2023Rollers250 | Rollers | 250 | 0.0723 | 0.3089 | 0.4627 | 0.0017 | 0.0161 | 153 | 0.0065 |
| 2023 | 2023Rollers500 | Rollers | 500 | 0.1005 | 0.4310 | 0.5973 | 0.0022 | 0.0219 | 219 | 0.0091 |
| 2023 | 2023Rollers Composite | Rollers Composite | | 0.0465 | 0.3784 | 0.2939 | 0.0008 | 0.0159 | 67.0 | 0.0042 |
| 2023 | 2023Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0420 | 0.3076 | 0.2321 | 0.0004 | 0.0074 | 33.9 | 0.0038 |
| 2023 | 2023Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0408 | 0.4115 | 0.2618 | 0.0007 | 0.0122 | 62.4 | 0.0037 |
| 2023 | 2023Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0645 | 0.7228 | 0.3175 | 0.0014 | 0.0158 | 125 | 0.0058 |
| 2023 | 2023Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0744 | 0.3388 | 0.3483 | 0.0019 | 0.0117 | 171 | 0.0067 |
| 2023 | 2023Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1103 | 0.4861 | 0.4872 | 0.0025 | 0.0172 | 257 | 0.0100 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0439 | 0.4439 | 0.2688 | 0.0008 | 0.0125 | 70.3 | 0.0040 |
| 2023 | 2023Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1290 | 0.8053 | 0.8018 | 0.0015 | 0.0450 | 129 | 0.0116 |
| 2023 | 2023Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1461 | 0.4845 | 1.0318 | 0.0021 | 0.0402 | 183 | 0.0132 |
| 2023 | 2023Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1986 | 0.8077 | 1.3478 | 0.0026 | 0.0528 | 265 | 0.0179 |
| 2023 | 2023Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.3001 | 1.2140 | 2.0778 | 0.0040 | 0.0805 | 399 | 0.0271 |
| 2023 | 2023Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4726 | 1.9494 | 4.9100 | 0.0060 | 0.1372 | 592 | 0.0426 |
| 2023 | 2023Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1830 | 0.7078 | 1.2624 | 0.0025 | 0.0494 | 239 | 0.0165 |
| 2023 | 2023Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2023 | 2023Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0475 | 0.2955 | 0.2217 | 0.0004 | 0.0091 | 31.1 | 0.0043 |
| 2023 | 2023Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0449 | 0.3934 | 0.2826 | 0.0007 | 0.0154 | 58.9 | 0.0040 |
| 2023 | 2023Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0618 | 0.6203 | 0.3296 | 0.0012 | 0.0169 | 106 | 0.0056 |
| 2023 | 2023Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0725 | 0.3079 | 0.3901 | 0.0017 | 0.0136 | 149 | 0.0065 |
| 2023 | 2023Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1127 | 0.4766 | 0.5638 | 0.0023 | 0.0207 | 237 | 0.0102 |
| 2023 | 2023Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2313 | 0.9758 | 1.1789 | 0.0049 | 0.0428 | 486 | 0.0209 |
| 2023 | 2023Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2970 | 1.2278 | 3.4839 | 0.0060 | 0.0740 | 594 | 0.0268 |
| 2023 | 2023Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0622 | 0.4340 | 0.3467 | 0.0012 | 0.0158 | 109 | 0.0056 |
| 2023 | 2023Scrapers120 | Scrapers | 120 | 0.1005 | 0.6522 | 0.5911 | 0.0011 | 0.0410 | 93.9 | 0.0091 |
| 2023 | 2023Scrapers175 | Scrapers | 175 | 0.1160 | 0.8884 | 0.6857 | 0.0017 | 0.0378 | 148 | 0.0105 |
| 2023 | 2023Scrapers250 | Scrapers | 250 | 0.1302 | 0.4766 | 0.8568 | 0.0024 | 0.0308 | 209 | 0.0117 |
| 2023 | 2023Scrapers500 | Scrapers | 500 | 0.1912 | 0.7700 | 1.1799 | 0.0032 | 0.0440 | 321 | 0.0173 |
| 2023 | 2023Scrapers750 | Scrapers | 750 | 0.3318 | 1.3291 | 2.0977 | 0.0056 | 0.0772 | 555 | 0.0299 |
| 2023 | 2023Scrapers Composite | Scrapers Composite | | 0.1641 | 0.7432 | 1.0171 | 0.0027 | 0.0406 | 262 | 0.0148 |
| 2023 | 2023Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2023 | 2023Signal Boards50 | Signal Boards | 50 | 0.0384 | 0.2727 | 0.2399 | 0.0005 | 0.0084 | 36.2 | 0.0035 |
| 2023 | 2023Signal Boards120 | Signal Boards | 120 | 0.0445 | 0.4910 | 0.3489 | 0.0009 | 0.0173 | 80.2 | 0.0040 |
| 2023 | 2023Signal Boards175 | Signal Boards | 175 | 0.0664 | 0.8282 | 0.4356 | 0.0017 | 0.0205 | 155 | 0.0060 |
| 2023 | 2023Signal Boards250 | Signal Boards | 250 | 0.0875 | 0.4696 | 0.5809 | 0.0029 | 0.0179 | 255 | 0.0079 |
| 2023 | 2023Signal Boards Composite | Signal Boards Composite | | 0.0117 | 0.0909 | 0.0780 | 0.0002 | 0.0033 | 16.7 | 0.0011 |
| 2023 | 2023Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0569 | 0.1059 | 0.0002 | 0.0041 | 13.8 | 0.0015 |
| 2023 | 2023Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0204 | 0.1985 | 0.1509 | 0.0003 | 0.0024 | 25.5 | 0.0018 |
| 2023 | 2023Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0188 | 0.2667 | 0.1364 | 0.0005 | 0.0034 | 42.8 | 0.0017 |
| 2023 | 2023Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0196 | 0.2110 | 0.1433 | 0.0004 | 0.0028 | 30.3 | 0.0018 |
| 2023 | 2023Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0202 | 0.1133 | 0.0981 | 0.0002 | 0.0045 | 14.1 | 0.0018 |
| 2023 | 2023Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0447 | 0.3975 | 0.3274 | 0.0007 | 0.0190 | 63.8 | 0.0040 |
| 2023 | 2023Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0441 | 0.4649 | 0.3028 | 0.0010 | 0.0150 | 85.8 | 0.0040 |
| 2023 | 2023Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0556 | 0.2653 | 0.4118 | 0.0015 | 0.0138 | 135 | 0.0050 |
| 2023 | 2023Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0874 | 0.4395 | 0.6089 | 0.0022 | 0.0214 | 221 | 0.0079 |
| 2023 | 2023Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1379 | 0.6891 | 0.9797 | 0.0035 | 0.0339 | 347 | 0.0124 |
| 2023 | 2023Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0703 | 0.3707 | 0.4836 | 0.0017 | 0.0176 | 166 | 0.0063 |
| 2023 | 2023Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2023 | 2023Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2023 | 2023Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0340 | 0.2791 | 0.2089 | 0.0004 | 0.0055 | 31.6 | 0.0031 |
| 2023 | 2023Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0444 | 0.4909 | 0.2906 | 0.0009 | 0.0112 | 75.0 | 0.0040 |
| 2023 | 2023Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0660 | 0.8008 | 0.3115 | 0.0016 | 0.0134 | 139 | 0.0060 |
| 2023 | 2023Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0650 | 0.3180 | 0.2671 | 0.0018 | 0.0080 | 162 | 0.0059 |
| 2023 | 2023Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0464 | 0.4855 | 0.2689 | 0.0009 | 0.0099 | 78.5 | 0.0042 |
| 2023 | 2023Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2023 | 2023Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0338 | 0.2698 | 0.1988 | 0.0004 | 0.0052 | 30.3 | 0.0030 |
| 2023 | 2023Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0304 | 0.3384 | 0.1974 | 0.0006 | 0.0076 | 51.7 | 0.0027 |
| 2023 | 2023Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0469 | 0.5840 | 0.2114 | 0.0011 | 0.0099 | 101 | 0.0042 |
| 2023 | 2023Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0693 | 0.3406 | 0.2840 | 0.0019 | 0.0098 | 172 | 0.0062 |
| 2023 | 2023Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1378 | 0.6538 | 0.5358 | 0.0039 | 0.0192 | 345 | 0.0124 |
| 2023 | 2023Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.2067 | 0.9806 | 0.8121 | 0.0058 | 0.0289 | 517 | 0.0186 |
| 2023 | 2023Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0365 | 0.3593 | 0.2127 | 0.0008 | 0.0081 | 66.8 | 0.0033 |
| 2023 | 2023Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2023 | 2023Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2023 | 2023Trenchers50 | Trenchers | 50 | 0.0795 | 0.3301 | 0.2590 | 0.0004 | 0.0169 | 32.9 | 0.0072 |
| 2023 | 2023Trenchers120 | Trenchers | 120 | 0.0706 | 0.4377 | 0.4353 | 0.0008 | 0.0314 | 64.9 | 0.0064 |
| 2023 | 2023Trenchers175 | Trenchers | 175 | 0.1133 | 0.8348 | 0.7330 | 0.0016 | 0.0406 | 144 | 0.0102 |
| 2023 | 2023Trenchers250 | Trenchers | 250 | 0.1371 | 0.5094 | 1.0145 | 0.0025 | 0.0371 | 223 | 0.0124 |
| 2023 | 2023Trenchers500 | Trenchers | 500 | 0.1814 | 0.7801 | 1.2742 | 0.0031 | 0.0478 | 311 | 0.0164 |
| 2023 | 2023Trenchers750 | Trenchers | 750 | 0.3437 | 1.4692 | 2.4692 | 0.0059 | 0.0915 | 587 | 0.0310 |
| 2023 | 2023Trenchers Composite | Trenchers Composite | | 0.0767 | 0.4150 | 0.3876 | 0.0007 | 0.0260 | 58.7 | 0.0069 |
| 2023 | 2023Welders15 | Welders | 15 | 0.0076 | 0.0383 | 0.0477 | 0.0001 | 0.0021 | 6.2 | 0.0007 |
| 2023 | 2023Welders25 | Welders | 25 | 0.0145 | 0.0479 | 0.0884 | 0.0001 | 0.0037 | 11.3 | 0.0013 |
| 2023 | 2023Welders50 | Welders | 50 | 0.0325 | 0.2111 | 0.1783 | 0.0003 | 0.0070 | 26.0 | 0.0029 |
| 2023 | 2023Welders120 | Welders | 120 | 0.0253 | 0.2482 | 0.1823 | 0.0005 | 0.0099 | 39.5 | 0.0023 |
| 2023 | 2023Welders175 | Welders | 175 | 0.0486 | 0.5390 | 0.3026 | 0.0011 | 0.0150 | 98.2 | 0.0044 |
| 2023 | 2023Welders250 | Welders | 250 | 0.0466 | 0.2248 | 0.2994 | 0.0013 | 0.0095 | 119 | 0.0042 |
| 2023 | 2023Welders500 | Welders | 500 | 0.0641 | 0.3056 | 0.3864 | 0.0016 | 0.0129 | 168 | 0.0058 |
| 2023 | 2023Welders Composite | Welders Composite | | 0.0242 | 0.1762 | 0.1487 | 0.0003 | 0.0068 | 25.6 | 0.0022 |
| 2024 | 2024Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2024 | 2024Aerial Lifts25 | Aerial Lifts | 25 | 0.0133 | 0.0452 | 0.0840 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2024 | 2024Aerial Lifts50 | Aerial Lifts | 50 | 0.0181 | 0.1362 | 0.1253 | 0.0003 | 0.0040 | 19.6 | 0.0016 |
| 2024 | 2024Aerial Lifts120 | Aerial Lifts | 120 | 0.0188 | 0.2268 | 0.1590 | 0.0004 | 0.0073 | 38.1 | 0.0017 |
| 2024 | 2024Aerial Lifts500 | Aerial Lifts | 500 | 0.0608 | 0.3720 | 0.4189 | 0.0021 | 0.0127 | 213 | 0.0055 |
| 2024 | 2024Aerial Lifts750 | Aerial Lifts | 750 | 0.1106 | 0.6724 | 0.7727 | 0.0039 | 0.0232 | 385 | 0.0100 |
| 2024 | 2024Aerial Lifts Composite | Aerial Lifts Composite | | 0.0195 | 0.1652 | 0.1442 | 0.0004 | 0.0055 | 34.7 | 0.0018 |
| 2024 | 2024Air Compressors15 | Air Compressors | 15 | 0.0088 | 0.0445 | 0.0550 | 0.0001 | 0.0024 | 7.2 | 0.0008 |
| 2024 | 2024Air Compressors25 | Air Compressors | 25 | 0.0183 | 0.0609 | 0.1126 | 0.0002 | 0.0046 | 14.4 | 0.0017 |
| 2024 | 2024Air Compressors50 | Air Compressors | 50 | 0.0280 | 0.1922 | 0.1519 | 0.0003 | 0.0054 | 22.3 | 0.0025 |
| 2024 | 2024Air Compressors120 | Air Compressors | 120 | 0.0306 | 0.3025 | 0.2052 | 0.0006 | 0.0104 | 47.0 | 0.0028 |
| 2024 | 2024Air Compressors175 | Air Compressors | 175 | 0.0451 | 0.4992 | 0.2467 | 0.0010 | 0.0122 | 88.5 | 0.0041 |
| 2024 | 2024Air Compressors250 | Air Compressors | 250 | 0.0540 | 0.2536 | 0.2931 | 0.0015 | 0.0092 | 131 | 0.0049 |
| 2024 | 2024Air Compressors500 | Air Compressors | 500 | 0.0937 | 0.4300 | 0.4761 | 0.0023 | 0.0158 | 232 | 0.0085 |
| 2024 | 2024Air Compressors750 | Air Compressors | 750 | 0.1452 | 0.6646 | 0.7508 | 0.0036 | 0.0248 | 358 | 0.0131 |
| 2024 | 2024Air Compressors1000 | Air Compressors | 1000 | 0.2105 | 0.9360 | 2.6550 | 0.0049 | 0.0536 | 486 | 0.0190 |
| 2024 | 2024Air Compressors Composite | Air Compressors Composite | | 0.0369 | 0.3031 | 0.2272 | 0.0007 | 0.0103 | 63.6 | 0.0033 |
| 2024 | 2024Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2024 | 2024Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2024 | 2024Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1666 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2024 | 2024Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0253 | 0.4660 | 0.1970 | 0.0009 | 0.0021 | 77.1 | 0.0023 |
| 2024 | 2024Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0327 | 0.7542 | 0.0827 | 0.0016 | 0.0031 | 141 | 0.0030 |
| 2024 | 2024Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0429 | 0.3426 | 0.1014 | 0.0021 | 0.0036 | 188 | 0.0039 |
| 2024 | 2024Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0710 | 0.5512 | 0.1671 | 0.0031 | 0.0060 | 311 | 0.0064 |
| 2024 | 2024Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1404 | 1.0890 | 0.3303 | 0.0062 | 0.0119 | 615 | 0.0127 |
| 2024 | 2024Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2130 | 1.6436 | 3.9011 | 0.0093 | 0.0372 | 928 | 0.0192 |
| 2024 | 2024Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0431 | 0.5007 | 0.2892 | 0.0017 | 0.0043 | 165 | 0.0039 |
| 2024 | 2024Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2024 | 2024Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0214 | 0.0726 | 0.1350 | 0.0002 | 0.0053 | 17.6 | 0.0019 |
| 2024 | 2024Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2024 | 2024Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2024 | 2024Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0299 | 0.2302 | 0.1967 | 0.0004 | 0.0062 | 30.2 | 0.0027 |
| 2024 | 2024Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0392 | 0.4568 | 0.3021 | 0.0009 | 0.0138 | 74.1 | 0.0035 |
| 2024 | 2024Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0664 | 0.8662 | 0.3998 | 0.0018 | 0.0189 | 160 | 0.0060 |
| 2024 | 2024Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0358 | 0.3716 | 0.2608 | 0.0007 | 0.0109 | 58.5 | 0.0032 |
| 2024 | 2024Cranes50 | Cranes | 50 | 0.0373 | 0.2278 | 0.1687 | 0.0003 | 0.0072 | 23.2 | 0.0034 |
| 2024 | 2024Cranes120 | Cranes | 120 | 0.0399 | 0.3391 | 0.2459 | 0.0006 | 0.0138 | 50.1 | 0.0036 |
| 2024 | 2024Cranes175 | Cranes | 175 | 0.0490 | 0.4745 | 0.2579 | 0.0009 | 0.0136 | 80.3 | 0.0044 |
| 2024 | 2024Cranes250 | Cranes | 250 | 0.0571 | 0.2333 | 0.3059 | 0.0013 | 0.0107 | 112 | 0.0051 |
| 2024 | 2024Cranes500 | Cranes | 500 | 0.0897 | 0.3566 | 0.4464 | 0.0018 | 0.0165 | 180 | 0.0081 |
| 2024 | 2024Cranes750 | Cranes | 750 | 0.1512 | 0.5999 | 0.7661 | 0.0030 | 0.0280 | 303 | 0.0136 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2024Cranes9999 | Cranes | 9999 | 0.5477 | 1.9971 | 5.8122 | 0.0098 | 0.1254 | 971 | 0.0494 |
| 2024 | 2024Cranes Composite | Cranes Composite | | 0.0715 | 0.3759 | 0.4601 | 0.0014 | 0.0161 | 129 | 0.0065 |
| 2024 | 2024Crawler Tractors50 | Crawler Tractors | 50 | 0.0522 | 0.2599 | 0.1887 | 0.0003 | 0.0100 | 24.9 | 0.0047 |
| 2024 | 2024Crawler Tractors120 | Crawler Tractors | 120 | 0.0646 | 0.4552 | 0.3786 | 0.0008 | 0.0246 | 65.8 | 0.0058 |
| 2024 | 2024Crawler Tractors175 | Crawler Tractors | 175 | 0.0874 | 0.7271 | 0.4904 | 0.0014 | 0.0268 | 121 | 0.0079 |
| 2024 | 2024Crawler Tractors250 | Crawler Tractors | 250 | 0.0966 | 0.3701 | 0.5904 | 0.0019 | 0.0211 | 166 | 0.0087 |
| 2024 | 2024Crawler Tractors500 | Crawler Tractors | 500 | 0.1450 | 0.5986 | 0.8297 | 0.0025 | 0.0308 | 259 | 0.0131 |
| 2024 | 2024Crawler Tractors750 | Crawler Tractors | 750 | 0.2611 | 1.0724 | 1.5305 | 0.0047 | 0.0561 | 465 | 0.0236 |
| 2024 | 2024Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3931 | 1.6052 | 4.3851 | 0.0066 | 0.1037 | 658 | 0.0355 |
| 2024 | 2024Crawler Tractors Composite | Crawler Tractors Composite | | 0.0832 | 0.5092 | 0.4874 | 0.0013 | 0.0252 | 114 | 0.0075 |
| 2024 | 2024Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0538 | 0.3879 | 0.2983 | 0.0006 | 0.0097 | 44.0 | 0.0049 |
| 2024 | 2024Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0533 | 0.5409 | 0.3495 | 0.0010 | 0.0165 | 83.1 | 0.0048 |
| 2024 | 2024Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0845 | 0.9548 | 0.4334 | 0.0019 | 0.0210 | 167 | 0.0076 |
| 2024 | 2024Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.1016 | 0.4774 | 0.5013 | 0.0028 | 0.0159 | 245 | 0.0092 |
| 2024 | 2024Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1531 | 0.6988 | 0.7082 | 0.0037 | 0.0236 | 374 | 0.0138 |
| 2024 | 2024Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2419 | 1.1018 | 1.1389 | 0.0059 | 0.0374 | 589 | 0.0218 |
| 2024 | 2024Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6320 | 2.5232 | 6.9713 | 0.0131 | 0.1376 | 1,308 | 0.0570 |
| 2024 | 2024Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0731 | 0.6193 | 0.4104 | 0.0015 | 0.0172 | 132 | 0.0066 |
| 2024 | 2024Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2024 | 2024Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2024 | 2024Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2024 | 2024Excavators50 | Excavators | 50 | 0.0307 | 0.2374 | 0.1655 | 0.0003 | 0.0041 | 25.0 | 0.0028 |
| 2024 | 2024Excavators120 | Excavators | 120 | 0.0466 | 0.4946 | 0.2785 | 0.0009 | 0.0108 | 73.6 | 0.0042 |
| 2024 | 2024Excavators175 | Excavators | 175 | 0.0546 | 0.6636 | 0.2257 | 0.0013 | 0.0107 | 112 | 0.0049 |
| 2024 | 2024Excavators250 | Excavators | 250 | 0.0675 | 0.3218 | 0.2539 | 0.0018 | 0.0086 | 159 | 0.0061 |
| 2024 | 2024Excavators500 | Excavators | 500 | 0.0985 | 0.4507 | 0.3521 | 0.0023 | 0.0124 | 234 | 0.0089 |
| 2024 | 2024Excavators750 | Excavators | 750 | 0.1635 | 0.7470 | 0.5916 | 0.0039 | 0.0207 | 387 | 0.0148 |
| 2024 | 2024Excavators Composite | Excavators Composite | | 0.0585 | 0.5091 | 0.2524 | 0.0013 | 0.0101 | 120 | 0.0053 |
| 2024 | 2024Forklifts50 | Forklifts | 50 | 0.0154 | 0.1361 | 0.0920 | 0.0002 | 0.0015 | 14.7 | 0.0014 |
| 2024 | 2024Forklifts120 | Forklifts | 120 | 0.0175 | 0.2086 | 0.1060 | 0.0004 | 0.0027 | 31.2 | 0.0016 |
| 2024 | 2024Forklifts175 | Forklifts | 175 | 0.0243 | 0.3307 | 0.0892 | 0.0006 | 0.0033 | 56.1 | 0.0022 |
| 2024 | 2024Forklifts250 | Forklifts | 250 | 0.0301 | 0.1550 | 0.0895 | 0.0009 | 0.0030 | 77.1 | 0.0027 |
| 2024 | 2024Forklifts500 | Forklifts | 500 | 0.0432 | 0.2122 | 0.1230 | 0.0011 | 0.0042 | 111 | 0.0039 |
| 2024 | 2024Forklifts Composite | Forklifts Composite | | 0.0246 | 0.2146 | 0.0974 | 0.0006 | 0.0029 | 54.4 | 0.0022 |
| 2024 | 2024Generator Sets15 | Generator Sets | 15 | 0.0110 | 0.0629 | 0.0775 | 0.0002 | 0.0033 | 10.2 | 0.0010 |
| 2024 | 2024Generator Sets25 | Generator Sets | 25 | 0.0217 | 0.0743 | 0.1375 | 0.0002 | 0.0056 | 17.6 | 0.0020 |
| 2024 | 2024Generator Sets50 | Generator Sets | 50 | 0.0262 | 0.2050 | 0.1936 | 0.0004 | 0.0059 | 30.6 | 0.0024 |
| 2024 | 2024Generator Sets120 | Generator Sets | 120 | 0.0364 | 0.4591 | 0.3212 | 0.0009 | 0.0142 | 77.9 | 0.0033 |
| 2024 | 2024Generator Sets175 | Generator Sets | 175 | 0.0502 | 0.7324 | 0.3708 | 0.0016 | 0.0158 | 142 | 0.0045 |
| 2024 | 2024Generator Sets250 | Generator Sets | 250 | 0.0588 | 0.3756 | 0.4449 | 0.0024 | 0.0127 | 213 | 0.0053 |
| 2024 | 2024Generator Sets500 | Generator Sets | 500 | 0.0905 | 0.5835 | 0.6525 | 0.0033 | 0.0195 | 337 | 0.0082 |
| 2024 | 2024Generator Sets750 | Generator Sets | 750 | 0.1473 | 0.9420 | 1.0745 | 0.0055 | 0.0318 | 544 | 0.0133 |
| 2024 | 2024Generator Sets9999 | Generator Sets | 9999 | 0.3426 | 1.8853 | 5.4399 | 0.0105 | 0.0985 | 1,049 | 0.0309 |
| 2024 | 2024Generator Sets Composite | Generator Sets Composite | | 0.0303 | 0.2674 | 0.2464 | 0.0007 | 0.0092 | 61.0 | 0.0027 |
| 2024 | 2024Graders50 | Graders | 50 | 0.0407 | 0.2621 | 0.1922 | 0.0004 | 0.0073 | 27.5 | 0.0037 |
| 2024 | 2024Graders120 | Graders | 120 | 0.0554 | 0.5021 | 0.3433 | 0.0009 | 0.0177 | 75.0 | 0.0050 |
| 2024 | 2024Graders175 | Graders | 175 | 0.0693 | 0.7264 | 0.3512 | 0.0014 | 0.0179 | 124 | 0.0063 |
| 2024 | 2024Graders250 | Graders | 250 | 0.0816 | 0.3568 | 0.4129 | 0.0019 | 0.0145 | 172 | 0.0074 |
| 2024 | 2024Graders500 | Graders | 500 | 0.1065 | 0.4665 | 0.5014 | 0.0023 | 0.0185 | 229 | 0.0096 |
| 2024 | 2024Graders750 | Graders | 750 | 0.2259 | 0.9869 | 1.0831 | 0.0049 | 0.0395 | 486 | 0.0204 |
| 2024 | 2024Graders Composite | Graders Composite | | 0.0714 | 0.5706 | 0.3709 | 0.0015 | 0.0168 | 133 | 0.0064 |
| 2024 | 2024Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1169 | 0.6647 | 0.6724 | 0.0011 | 0.0494 | 93.7 | 0.0106 |
| 2024 | 2024Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1172 | 0.7945 | 0.7183 | 0.0015 | 0.0402 | 130 | 0.0106 |
| 2024 | 2024Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0933 | 0.3246 | 0.6484 | 0.0015 | 0.0247 | 130 | 0.0084 |
| 2024 | 2024Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3859 | 1.5884 | 2.6171 | 0.0057 | 0.0998 | 568 | 0.0348 |
| 2024 | 2024Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5888 | 2.4551 | 6.3258 | 0.0082 | 0.1689 | 814 | 0.0531 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2024Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1192 | 0.6165 | 0.7884 | 0.0017 | 0.0360 | 151 | 0.0108 |
| 2024 | 2024Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0655 | 0.7536 | 0.2698 | 0.0014 | 0.0131 | 125 | 0.0059 |
| 2024 | 2024Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0761 | 0.3445 | 0.2879 | 0.0019 | 0.0098 | 167 | 0.0069 |
| 2024 | 2024Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1232 | 0.5334 | 0.4414 | 0.0027 | 0.0157 | 272 | 0.0111 |
| 2024 | 2024Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.2001 | 0.8652 | 0.7266 | 0.0044 | 0.0256 | 442 | 0.0181 |
| 2024 | 2024Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2949 | 1.2476 | 3.2774 | 0.0063 | 0.0601 | 625 | 0.0266 |
| 2024 | 2024Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1189 | 0.5401 | 0.5286 | 0.0027 | 0.0164 | 260 | 0.0107 |
| 2024 | 2024Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2024 | 2024Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2024 | 2024Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0254 | 0.2197 | 0.1736 | 0.0004 | 0.0040 | 28.0 | 0.0023 |
| 2024 | 2024Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0397 | 0.5049 | 0.2876 | 0.0009 | 0.0103 | 80.9 | 0.0036 |
| 2024 | 2024Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0407 | 0.5858 | 0.1980 | 0.0012 | 0.0089 | 107 | 0.0037 |
| 2024 | 2024Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0828 | 0.4612 | 0.3489 | 0.0025 | 0.0117 | 254 | 0.0075 |
| 2024 | 2024Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0462 | 0.3477 | 0.2244 | 0.0013 | 0.0079 | 123 | 0.0042 |
| 2024 | 2024Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2024 | 2024Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2024 | 2024Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0316 | 0.2111 | 0.1534 | 0.0003 | 0.0055 | 21.7 | 0.0029 |
| 2024 | 2024Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0460 | 0.4192 | 0.2770 | 0.0007 | 0.0141 | 62.0 | 0.0041 |
| 2024 | 2024Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0551 | 0.5678 | 0.2723 | 0.0011 | 0.0135 | 95.9 | 0.0050 |
| 2024 | 2024Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0637 | 0.2749 | 0.3073 | 0.0015 | 0.0097 | 136 | 0.0058 |
| 2024 | 2024Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1228 | 0.5114 | 0.5533 | 0.0026 | 0.0185 | 265 | 0.0111 |
| 2024 | 2024Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.2029 | 0.8429 | 0.9305 | 0.0044 | 0.0309 | 437 | 0.0183 |
| 2024 | 2024Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2763 | 1.1172 | 3.1204 | 0.0056 | 0.0642 | 560 | 0.0249 |
| 2024 | 2024Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0784 | 0.4446 | 0.4363 | 0.0016 | 0.0151 | 152 | 0.0071 |
| 2024 | 2024Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0435 | 0.2910 | 0.2133 | 0.0004 | 0.0076 | 30.3 | 0.0039 |
| 2024 | 2024Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0444 | 0.4079 | 0.2705 | 0.0007 | 0.0138 | 60.7 | 0.0040 |
| 2024 | 2024Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0694 | 0.7189 | 0.3463 | 0.0014 | 0.0172 | 122 | 0.0063 |
| 2024 | 2024Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0673 | 0.2925 | 0.3285 | 0.0016 | 0.0104 | 145 | 0.0061 |
| 2024 | 2024Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0875 | 0.3678 | 0.3992 | 0.0019 | 0.0133 | 192 | 0.0079 |
| 2024 | 2024Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3974 | 1.4745 | 4.1250 | 0.0073 | 0.0848 | 741 | 0.0359 |
| 2024 | 2024Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0733 | 0.4362 | 0.4243 | 0.0015 | 0.0145 | 141 | 0.0066 |
| 2024 | 2024Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2024 | 2024Pavers50 | Pavers | 50 | 0.0618 | 0.2844 | 0.2154 | 0.0004 | 0.0127 | 28.0 | 0.0056 |
| 2024 | 2024Pavers120 | Pavers | 120 | 0.0706 | 0.4714 | 0.4258 | 0.0008 | 0.0292 | 69.2 | 0.0064 |
| 2024 | 2024Pavers175 | Pavers | 175 | 0.0956 | 0.7552 | 0.5753 | 0.0014 | 0.0317 | 128 | 0.0086 |
| 2024 | 2024Pavers250 | Pavers | 250 | 0.1150 | 0.4348 | 0.7727 | 0.0022 | 0.0279 | 194 | 0.0104 |
| 2024 | 2024Pavers500 | Pavers | 500 | 0.1319 | 0.5518 | 0.8323 | 0.0023 | 0.0311 | 233 | 0.0119 |
| 2024 | 2024Pavers Composite | Pavers Composite | | 0.0764 | 0.4773 | 0.4135 | 0.0009 | 0.0244 | 77.9 | 0.0069 |
| 2024 | 2024Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2024 | 2024Paving Equipment50 | Paving Equipment | 50 | 0.0508 | 0.2391 | 0.1834 | 0.0003 | 0.0106 | 23.9 | 0.0046 |
| 2024 | 2024Paving Equipment120 | Paving Equipment | 120 | 0.0539 | 0.3687 | 0.3298 | 0.0006 | 0.0225 | 54.5 | 0.0049 |
| 2024 | 2024Paving Equipment175 | Paving Equipment | 175 | 0.0733 | 0.5907 | 0.4437 | 0.0011 | 0.0244 | 101 | 0.0066 |
| 2024 | 2024Paving Equipment250 | Paving Equipment | 250 | 0.0705 | 0.2683 | 0.4748 | 0.0014 | 0.0170 | 122 | 0.0064 |
| 2024 | 2024Paving Equipment Composite | Paving Equipment Composite | | 0.0584 | 0.4007 | 0.3546 | 0.0008 | 0.0212 | 68.9 | 0.0053 |
| 2024 | 2024Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2024 | 2024Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2024 | 2024Pressure Washers15 | Pressure Washers | 15 | 0.0053 | 0.0301 | 0.0371 | 0.0001 | 0.0016 | 4.9 | 0.0005 |
| 2024 | 2024Pressure Washers25 | Pressure Washers | 25 | 0.0088 | 0.0301 | 0.0557 | 0.0001 | 0.0023 | 7.1 | 0.0008 |
| 2024 | 2024Pressure Washers50 | Pressure Washers | 50 | 0.0086 | 0.0816 | 0.0868 | 0.0002 | 0.0022 | 14.3 | 0.0008 |
| 2024 | 2024Pressure Washers120 | Pressure Washers | 120 | 0.0088 | 0.1353 | 0.0952 | 0.0003 | 0.0037 | 24.1 | 0.0008 |
| 2024 | 2024Pressure Washers Composite | Pressure Washers Composite | | 0.0069 | 0.0534 | 0.0575 | 0.0001 | 0.0020 | 9.4 | 0.0006 |
| 2024 | 2024Pumps15 | Pumps | 15 | 0.0090 | 0.0457 | 0.0565 | 0.0001 | 0.0025 | 7.4 | 0.0008 |
| 2024 | 2024Pumps25 | Pumps | 25 | 0.0247 | 0.0821 | 0.1519 | 0.0002 | 0.0062 | 19.5 | 0.0022 |
| 2024 | 2024Pumps50 | Pumps | 50 | 0.0323 | 0.2413 | 0.2200 | 0.0004 | 0.0071 | 34.3 | 0.0029 |
| 2024 | 2024Pumps120 | Pumps | 120 | 0.0390 | 0.4661 | 0.3256 | 0.0009 | 0.0151 | 77.9 | 0.0035 |
| 2024 | 2024Pumps175 | Pumps | 175 | 0.0533 | 0.7338 | 0.3720 | 0.0016 | 0.0165 | 140 | 0.0048 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2024Pumps250 | Pumps | 250 | 0.0603 | 0.3614 | 0.4290 | 0.0023 | 0.0125 | 201 | 0.0054 |
| 2024 | 2024Pumps500 | Pumps | 500 | 0.1006 | 0.6050 | 0.6783 | 0.0034 | 0.0208 | 345 | 0.0091 |
| 2024 | 2024Pumps750 | Pumps | 750 | 0.1672 | 1.0001 | 1.1442 | 0.0057 | 0.0348 | 571 | 0.0151 |
| 2024 | 2024Pumps9999 | Pumps | 9999 | 0.4739 | 2.4659 | 7.1019 | 0.0136 | 0.1313 | 1,355 | 0.0428 |
| 2024 | 2024Pumps Composite | Pumps Composite | | 0.0285 | 0.2624 | 0.2193 | 0.0006 | 0.0089 | 49.6 | 0.0026 |
| 2024 | 2024Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2024 | 2024Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2024 | 2024Rollers50 | Rollers | 50 | 0.0371 | 0.2282 | 0.1822 | 0.0003 | 0.0077 | 26.0 | 0.0033 |
| 2024 | 2024Rollers120 | Rollers | 120 | 0.0418 | 0.3810 | 0.2832 | 0.0007 | 0.0157 | 59.0 | 0.0038 |
| 2024 | 2024Rollers175 | Rollers | 175 | 0.0587 | 0.6097 | 0.3395 | 0.0012 | 0.0176 | 108 | 0.0053 |
| 2024 | 2024Rollers250 | Rollers | 250 | 0.0689 | 0.3061 | 0.4099 | 0.0017 | 0.0143 | 153 | 0.0062 |
| 2024 | 2024Rollers500 | Rollers | 500 | 0.0962 | 0.4242 | 0.5328 | 0.0022 | 0.0195 | 219 | 0.0087 |
| 2024 | 2024Rollers Composite | Rollers Composite | | 0.0435 | 0.3772 | 0.2707 | 0.0008 | 0.0139 | 67.0 | 0.0039 |
| 2024 | 2024Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0398 | 0.3057 | 0.2254 | 0.0004 | 0.0063 | 33.9 | 0.0036 |
| 2024 | 2024Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0387 | 0.4110 | 0.2454 | 0.0007 | 0.0104 | 62.4 | 0.0035 |
| 2024 | 2024Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0605 | 0.7228 | 0.2796 | 0.0014 | 0.0134 | 125 | 0.0055 |
| 2024 | 2024Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0705 | 0.3379 | 0.3029 | 0.0019 | 0.0099 | 171 | 0.0064 |
| 2024 | 2024Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.1048 | 0.4847 | 0.4245 | 0.0025 | 0.0146 | 257 | 0.0095 |
| 2024 | 2024Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0416 | 0.4433 | 0.2499 | 0.0008 | 0.0106 | 70.3 | 0.0038 |
| 2024 | 2024Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1225 | 0.8035 | 0.7440 | 0.0015 | 0.0417 | 129 | 0.0111 |
| 2024 | 2024Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1392 | 0.4728 | 0.9557 | 0.0021 | 0.0369 | 183 | 0.0126 |
| 2024 | 2024Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1898 | 0.7765 | 1.2479 | 0.0026 | 0.0487 | 265 | 0.0171 |
| 2024 | 2024Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2869 | 1.1673 | 1.9252 | 0.0040 | 0.0742 | 399 | 0.0259 |
| 2024 | 2024Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4517 | 1.8684 | 4.7258 | 0.0060 | 0.1284 | 592 | 0.0408 |
| 2024 | 2024Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1748 | 0.6835 | 1.1695 | 0.0025 | 0.0455 | 239 | 0.0158 |
| 2024 | 2024Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2024 | 2024Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0443 | 0.2927 | 0.2161 | 0.0004 | 0.0079 | 31.1 | 0.0040 |
| 2024 | 2024Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0420 | 0.3924 | 0.2639 | 0.0007 | 0.0132 | 58.9 | 0.0038 |
| 2024 | 2024Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0580 | 0.6201 | 0.2922 | 0.0012 | 0.0148 | 106 | 0.0052 |
| 2024 | 2024Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0691 | 0.3059 | 0.3442 | 0.0017 | 0.0121 | 149 | 0.0062 |
| 2024 | 2024Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1078 | 0.4705 | 0.5009 | 0.0023 | 0.0184 | 237 | 0.0097 |
| 2024 | 2024Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2211 | 0.9634 | 1.0446 | 0.0049 | 0.0380 | 486 | 0.0199 |
| 2024 | 2024Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2828 | 1.2085 | 3.3471 | 0.0060 | 0.0674 | 594 | 0.0255 |
| 2024 | 2024Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0588 | 0.4324 | 0.3131 | 0.0012 | 0.0138 | 109 | 0.0053 |
| 2024 | 2024Scrapers120 | Scrapers | 120 | 0.0943 | 0.6496 | 0.5551 | 0.0011 | 0.0368 | 93.9 | 0.0085 |
| 2024 | 2024Scrapers175 | Scrapers | 175 | 0.1090 | 0.8874 | 0.6232 | 0.0017 | 0.0341 | 148 | 0.0098 |
| 2024 | 2024Scrapers250 | Scrapers | 250 | 0.1242 | 0.4700 | 0.7773 | 0.0024 | 0.0280 | 209 | 0.0112 |
| 2024 | 2024Scrapers500 | Scrapers | 500 | 0.1830 | 0.7505 | 1.0718 | 0.0032 | 0.0400 | 321 | 0.0165 |
| 2024 | 2024Scrapers750 | Scrapers | 750 | 0.3175 | 1.2955 | 1.9046 | 0.0056 | 0.0702 | 555 | 0.0286 |
| 2024 | 2024Scrapers Composite | Scrapers Composite | | 0.1565 | 0.7302 | 0.9241 | 0.0027 | 0.0369 | 262 | 0.0141 |
| 2024 | 2024Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2024 | 2024Signal Boards50 | Signal Boards | 50 | 0.0357 | 0.2705 | 0.2332 | 0.0005 | 0.0073 | 36.2 | 0.0032 |
| 2024 | 2024Signal Boards120 | Signal Boards | 120 | 0.0418 | 0.4904 | 0.3267 | 0.0009 | 0.0149 | 80.2 | 0.0038 |
| 2024 | 2024Signal Boards175 | Signal Boards | 175 | 0.0624 | 0.8287 | 0.3881 | 0.0017 | 0.0178 | 155 | 0.0056 |
| 2024 | 2024Signal Boards250 | Signal Boards | 250 | 0.0833 | 0.4684 | 0.5094 | 0.0029 | 0.0155 | 255 | 0.0075 |
| 2024 | 2024Signal Boards Composite | Signal Boards Composite | | 0.0114 | 0.0909 | 0.0747 | 0.0002 | 0.0031 | 16.7 | 0.0010 |
| 2024 | 2024Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1056 | 0.0002 | 0.0041 | 13.8 | 0.0015 |
| 2024 | 2024Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0198 | 0.1981 | 0.1474 | 0.0003 | 0.0019 | 25.5 | 0.0018 |
| 2024 | 2024Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0181 | 0.2666 | 0.1295 | 0.0005 | 0.0027 | 42.8 | 0.0016 |
| 2024 | 2024Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0190 | 0.2107 | 0.1389 | 0.0004 | 0.0023 | 30.3 | 0.0017 |
| 2024 | 2024Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0185 | 0.1118 | 0.0956 | 0.0002 | 0.0040 | 14.1 | 0.0017 |
| 2024 | 2024Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0414 | 0.3961 | 0.3061 | 0.0007 | 0.0167 | 63.8 | 0.0037 |
| 2024 | 2024Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0412 | 0.4645 | 0.2712 | 0.0010 | 0.0133 | 85.8 | 0.0037 |
| 2024 | 2024Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0528 | 0.2627 | 0.3674 | 0.0015 | 0.0124 | 135 | 0.0048 |
| 2024 | 2024Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0836 | 0.4310 | 0.5459 | 0.0022 | 0.0193 | 221 | 0.0075 |
| 2024 | 2024Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1317 | 0.6758 | 0.8761 | 0.0035 | 0.0306 | 347 | 0.0119 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2024 | 2024Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0669 | 0.3644 | 0.4356 | 0.0017 | 0.0159 | 166 | 0.0060 |
| 2024 | 2024Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2024 | 2024Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2024 | 2024Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0322 | 0.2774 | 0.2012 | 0.0004 | 0.0043 | 31.6 | 0.0029 |
| 2024 | 2024Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0417 | 0.4901 | 0.2701 | 0.0009 | 0.0086 | 75.0 | 0.0038 |
| 2024 | 2024Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0608 | 0.8006 | 0.2634 | 0.0016 | 0.0101 | 139 | 0.0055 |
| 2024 | 2024Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0616 | 0.3179 | 0.2252 | 0.0018 | 0.0069 | 162 | 0.0056 |
| 2024 | 2024Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0434 | 0.4846 | 0.2457 | 0.0009 | 0.0076 | 78.5 | 0.0039 |
| 2024 | 2024Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2024 | 2024Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0326 | 0.2687 | 0.1939 | 0.0004 | 0.0043 | 30.3 | 0.0029 |
| 2024 | 2024Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0291 | 0.3381 | 0.1857 | 0.0006 | 0.0065 | 51.7 | 0.0026 |
| 2024 | 2024Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0442 | 0.5840 | 0.1843 | 0.0011 | 0.0084 | 101 | 0.0040 |
| 2024 | 2024Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0661 | 0.3397 | 0.2465 | 0.0019 | 0.0084 | 172 | 0.0060 |
| 2024 | 2024Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1317 | 0.6521 | 0.4696 | 0.0039 | 0.0166 | 345 | 0.0119 |
| 2024 | 2024Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1976 | 0.9781 | 0.7117 | 0.0058 | 0.0250 | 517 | 0.0178 |
| 2024 | 2024Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0349 | 0.3589 | 0.1980 | 0.0008 | 0.0069 | 66.8 | 0.0031 |
| 2024 | 2024Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2024 | 2024Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2024 | 2024Trenchers50 | Trenchers | 50 | 0.0739 | 0.3247 | 0.2527 | 0.0004 | 0.0154 | 32.9 | 0.0067 |
| 2024 | 2024Trenchers120 | Trenchers | 120 | 0.0664 | 0.4358 | 0.4099 | 0.0008 | 0.0286 | 64.9 | 0.0060 |
| 2024 | 2024Trenchers175 | Trenchers | 175 | 0.1069 | 0.8337 | 0.6721 | 0.0016 | 0.0371 | 144 | 0.0096 |
| 2024 | 2024Trenchers250 | Trenchers | 250 | 0.1307 | 0.5004 | 0.9284 | 0.0025 | 0.0339 | 223 | 0.0118 |
| 2024 | 2024Trenchers500 | Trenchers | 500 | 0.1735 | 0.7573 | 1.1664 | 0.0031 | 0.0438 | 311 | 0.0157 |
| 2024 | 2024Trenchers750 | Trenchers | 750 | 0.3287 | 1.4264 | 2.2609 | 0.0059 | 0.0838 | 587 | 0.0297 |
| 2024 | 2024Trenchers Composite | Trenchers Composite | | 0.0719 | 0.4116 | 0.3672 | 0.0007 | 0.0237 | 58.7 | 0.0065 |
| 2024 | 2024Welders15 | Welders | 15 | 0.0076 | 0.0382 | 0.0472 | 0.0001 | 0.0021 | 6.2 | 0.0007 |
| 2024 | 2024Welders25 | Welders | 25 | 0.0143 | 0.0475 | 0.0880 | 0.0001 | 0.0036 | 11.3 | 0.0013 |
| 2024 | 2024Welders50 | Welders | 50 | 0.0301 | 0.2093 | 0.1733 | 0.0003 | 0.0061 | 26.0 | 0.0027 |
| 2024 | 2024Welders120 | Welders | 120 | 0.0237 | 0.2479 | 0.1705 | 0.0005 | 0.0085 | 39.5 | 0.0021 |
| 2024 | 2024Welders175 | Welders | 175 | 0.0457 | 0.5395 | 0.2704 | 0.0011 | 0.0131 | 98.2 | 0.0041 |
| 2024 | 2024Welders250 | Welders | 250 | 0.0444 | 0.2241 | 0.2632 | 0.0013 | 0.0082 | 119 | 0.0040 |
| 2024 | 2024Welders500 | Welders | 500 | 0.0613 | 0.3047 | 0.3404 | 0.0016 | 0.0111 | 168 | 0.0055 |
| 2024 | 2024Welders Composite | Welders Composite | | 0.0227 | 0.1753 | 0.1428 | 0.0003 | 0.0059 | 25.6 | 0.0021 |
| 2025 | 2025Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2025 | 2025Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2025 | 2025Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2025 | 2025Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2025 | 2025Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2025 | 2025Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2025 | 2025Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2025 | 2025Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2025 | 2025Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2025 | 2025Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2025 | 2025Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2025 | 2025Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2025 | 2025Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2025 | 2025Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2025 | 2025Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2025 | 2025Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2025 | 2025Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2025 | 2025Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2025 | 2025Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2025 | 2025Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2025 | 2025Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2025 | 2025Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2025 | 2025Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | 2025Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2025 | 2025Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2025 | 2025Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2025 | 2025Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2025 | 2025Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2025 | 2025Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2025 | 2025Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2025 | 2025Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2025 | 2025Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2025 | 2025Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2025 | 2025Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2025 | 2025Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2025 | 2025Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2025 | 2025Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2025 | 2025Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2025 | 2025Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2025 | 2025Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2025 | 2025Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2025 | 2025Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2025 | 2025Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2025 | 2025Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2025 | 2025Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2025 | 2025Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2025 | 2025Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2025 | 2025Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2025 | 2025Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2025 | 2025Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2025 | 2025Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2025 | 2025Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2025 | 2025Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2025 | 2025Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2025 | 2025Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2025 | 2025Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2025 | 2025Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2025 | 2025Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2025 | 2025Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2025 | 2025Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2025 | 2025Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2025 | 2025Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2025 | 2025Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2025 | 2025Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2025 | 2025Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2025 | 2025Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2025 | 2025Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2025 | 2025Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2025 | 2025Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2025 | 2025Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2025 | 2025Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2025 | 2025Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2025 | 2025Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2025 | 2025Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2025 | 2025Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2025 | 2025Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2025 | 2025Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2025 | 2025Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2025 | 2025Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | 2025Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2025 | 2025Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2025 | 2025Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2025 | 2025Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2025 | 2025Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2025 | 2025Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2025 | 2025Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2025 | 2025Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2025 | 2025Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2025 | 2025Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2025 | 2025Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2025 | 2025Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2025 | 2025Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2025 | 2025Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2025 | 2025Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2025 | 2025Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2025 | 2025Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2025 | 2025Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2025 | 2025Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2025 | 2025Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2025 | 2025Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2025 | 2025Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2025 | 2025Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2025 | 2025Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2025 | 2025Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2025 | 2025Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2025 | 2025Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2025 | 2025Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2025 | 2025Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2025 | 2025Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2025 | 2025Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2025 | 2025Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2025 | 2025Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2025 | 2025Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2025 | 2025Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2025 | 2025Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2025 | 2025Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2025 | 2025Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2025 | 2025Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2025 | 2025Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2025 | 2025Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2025 | 2025Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2025 | 2025Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2025 | 2025Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2025 | 2025Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2025 | 2025Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2025 | 2025Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2025 | 2025Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2025 | 2025Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2025 | 2025Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2025 | 2025Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2025 | 2025Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2025 | 2025Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2025 | 2025Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2025 | 2025Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2025 | 2025Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | 2025Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2025 | 2025Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2025 | 2025Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2025 | 2025Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2025 | 2025Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2025 | 2025Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2025 | 2025Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2025 | 2025Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2025 | 2025Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2025 | 2025Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2025 | 2025Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2025 | 2025Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2025 | 2025Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2025 | 2025Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2025 | 2025Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2025 | 2025Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2025 | 2025Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2025 | 2025Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2025 | 2025Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2025 | 2025Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2025 | 2025Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2025 | 2025Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2025 | 2025Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2025 | 2025Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2025 | 2025Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2025 | 2025Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2025 | 2025Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2025 | 2025Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2025 | 2025Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2025 | 2025Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2025 | 2025Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2025 | 2025Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2025 | 2025Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2025 | 2025Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2025 | 2025Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2025 | 2025Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2025 | 2025Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2025 | 2025Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2025 | 2025Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2025 | 2025Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2025 | 2025Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2025 | 2025Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2025 | 2025Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2025 | 2025Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2025 | 2025Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2025 | 2025Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2025 | 2025Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2025 | 2025Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2025 | 2025Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2025 | 2025Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2025 | 2025Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2025 | 2025Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2025 | 2025Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2025 | 2025Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2025 | 2025Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2025 | 2025Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | 2025Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2025 | 2025Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2025 | 2025Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2025 | 2025Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2025 | 2025Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2025 | 2025Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2025 | 2025Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2025 | 2025Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2025 | 2025Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2025 | 2025Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2025 | 2025Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2025 | 2025Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2025 | 2025Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2025 | 2025Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2025 | 2025Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2025 | 2025Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2025 | 2025Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2025 | 2025Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2025 | 2025Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2025 | 2025Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2025 | 2025Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2025 | 2025Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2025 | 2025Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2025 | 2025Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2025 | 2025Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2025 | 2025Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2025 | 2025Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2025 | 2025Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2025 | 2025Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2025 | 2025Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2025 | 2025Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2025 | 2025Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2025 | 2025Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2025 | 2025Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2025 | 2025Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2025 | 2025Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2025 | 2025Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2025 | 2025Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2025 | 2025Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2025 | 2025Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2025 | 2025Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2025 | 2025Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2025 | 2025Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2025 | 2025Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2025 | 2025Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2025 | 2025Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2025 | 2025Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2025 | 2025Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2025 | 2025Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2025 | 2025Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2025 | 2025Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2026 | 2026Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2026 | 2026Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2026 | 2026Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2026 | 2026Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2026 | 2026Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2026 | 2026Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2026 | 2026Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2026 | 2026Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2026 | 2026Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2026 | 2026Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2026 | 2026Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2026 | 2026Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2026 | 2026Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2026 | 2026Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2026 | 2026Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2026 | 2026Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2026 | 2026Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2026 | 2026Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2026 | 2026Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2026 | 2026Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2026 | 2026Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2026 | 2026Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2026 | 2026Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2026 | 2026Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2026 | 2026Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2026 | 2026Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2026 | 2026Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2026 | 2026Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2026 | 2026Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2026 | 2026Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2026 | 2026Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2026 | 2026Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2026 | 2026Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2026 | 2026Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2026 | 2026Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2026 | 2026Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2026 | 2026Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2026 | 2026Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2026 | 2026Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2026 | 2026Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2026 | 2026Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2026 | 2026Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2026 | 2026Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2026 | 2026Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2026 | 2026Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2026 | 2026Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2026 | 2026Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2026 | 2026Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2026 | 2026Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2026 | 2026Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2026 | 2026Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2026 | 2026Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2026 | 2026Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2026 | 2026Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2026 | 2026Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2026 | 2026Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2026 | 2026Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2026 | 2026Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2026 | 2026Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2026 | 2026Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2026 | 2026Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2026 | 2026Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2026 | 2026Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2026 | 2026Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2026 | 2026Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2026 | 2026Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2026 | 2026Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2026 | 2026Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2026 | 2026Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2026 | 2026Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2026 | 2026Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2026 | 2026Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2026 | 2026Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2026 | 2026Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2026 | 2026Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2026 | 2026Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2026 | 2026Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2026 | 2026Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2026 | 2026Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2026 | 2026Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2026 | 2026Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2026 | 2026Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2026 | 2026Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2026 | 2026Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2026 | 2026Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2026 | 2026Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2026 | 2026Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2026 | 2026Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2026 | 2026Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2026 | 2026Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2026 | 2026Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2026 | 2026Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2026 | 2026Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2026 | 2026Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2026 | 2026Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2026 | 2026Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2026 | 2026Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2026 | 2026Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2026 | 2026Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2026 | 2026Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2026 | 2026Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2026 | 2026Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2026 | 2026Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2026 | 2026Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2026 | 2026Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2026 | 2026Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2026 | 2026Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2026 | 2026Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2026 | 2026Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2026 | 2026Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2026 | 2026Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2026 | 2026Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2026 | 2026Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2026 | 2026Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2026 | 2026Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2026 | 2026Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2026 | 2026Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2026 | 2026Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2026 | 2026Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2026 | 2026Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2026 | 2026Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2026 | 2026Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2026 | 2026Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2026 | 2026Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2026 | 2026Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2026 | 2026Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2026 | 2026Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2026 | 2026Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2026 | 2026Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2026 | 2026Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2026 | 2026Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2026 | 2026Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2026 | 2026Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2026 | 2026Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2026 | 2026Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2026 | 2026Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2026 | 2026Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2026 | 2026Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2026 | 2026Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2026 | 2026Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2026 | 2026Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2026 | 2026Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2026 | 2026Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2026 | 2026Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2026 | 2026Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2026 | 2026Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2026 | 2026Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2026 | 2026Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2026 | 2026Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2026 | 2026Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2026 | 2026Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2026 | 2026Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2026 | 2026Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2026 | 2026Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2026 | 2026Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2026 | 2026Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2026 | 2026Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2026 | 2026Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2026 | 2026Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2026 | 2026Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2026 | 2026Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2026 | 2026Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2026 | 2026Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2026 | 2026Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2026 | 2026Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2026 | 2026Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2026 | 2026Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2026 | 2026Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2026 | 2026Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2026 | 2026Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2026 | 2026Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2026 | 2026Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2026 | 2026Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2026 | 2026Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2026 | 2026Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2026 | 2026Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2026 | 2026Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2026 | 2026Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2026 | 2026Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2026 | 2026Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2026 | 2026Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2026 | 2026Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2026 | 2026Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2026 | 2026Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2026 | 2026Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2026 | 2026Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2026 | 2026Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2026 | 2026Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2026 | 2026Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2026 | 2026Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2026 | 2026Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2026 | 2026Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2026 | 2026Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2026 | 2026Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2026 | 2026Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2026 | 2026Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2026 | 2026Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2026 | 2026Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2026 | 2026Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2026 | 2026Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2026 | 2026Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2026 | 2026Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2026 | 2026Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2026 | 2026Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2026 | 2026Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2026 | 2026Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2026 | 2026Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2026 | 2026Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2026 | 2026Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2026 | 2026Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2026 | 2026Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2026 | 2026Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2026 | 2026Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2026 | 2026Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2026 | 2026Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2026 | 2026Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2026 | 2026Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2026 | 2026Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2026 | 2026Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2026 | 2026Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2026 | 2026Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2026 | 2026Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2026 | 2026Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2026 | 2026Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2026 | 2026Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | 2026Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2026 | 2026Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2026 | 2026Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2026 | 2026Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2026 | 2026Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2026 | 2026Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2026 | 2026Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2026 | 2026Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2026 | 2026Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2026 | 2026Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2026 | 2026Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2026 | 2026Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2026 | 2026Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2027 | 2027Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2027 | 2027Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2027 | 2027Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2027 | 2027Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2027 | 2027Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2027 | 2027Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2027 | 2027Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2027 | 2027Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2027 | 2027Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2027 | 2027Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2027 | 2027Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2027 | 2027Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2027 | 2027Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2027 | 2027Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2027 | 2027Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2027 | 2027Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2027 | 2027Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2027 | 2027Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2027 | 2027Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2027 | 2027Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2027 | 2027Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2027 | 2027Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2027 | 2027Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2027 | 2027Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2027 | 2027Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2027 | 2027Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2027 | 2027Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2027 | 2027Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2027 | 2027Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2027 | 2027Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2027 | 2027Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2027 | 2027Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2027 | 2027Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2027 | 2027Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2027 | 2027Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2027 | 2027Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2027 | 2027Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2027 | 2027Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2027 | 2027Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2027 | 2027Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2027 | 2027Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2027 | 2027Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2027 | 2027Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | 2027Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2027 | 2027Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2027 | 2027Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2027 | 2027Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2027 | 2027Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2027 | 2027Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2027 | 2027Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2027 | 2027Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2027 | 2027Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2027 | 2027Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2027 | 2027Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2027 | 2027Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2027 | 2027Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2027 | 2027Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2027 | 2027Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2027 | 2027Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2027 | 2027Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2027 | 2027Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2027 | 2027Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2027 | 2027Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2027 | 2027Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2027 | 2027Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2027 | 2027Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2027 | 2027Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2027 | 2027Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2027 | 2027Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2027 | 2027Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2027 | 2027Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2027 | 2027Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2027 | 2027Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2027 | 2027Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2027 | 2027Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2027 | 2027Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2027 | 2027Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2027 | 2027Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2027 | 2027Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2027 | 2027Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2027 | 2027Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2027 | 2027Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2027 | 2027Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2027 | 2027Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2027 | 2027Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2027 | 2027Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2027 | 2027Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2027 | 2027Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2027 | 2027Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2027 | 2027Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2027 | 2027Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2027 | 2027Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2027 | 2027Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2027 | 2027Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2027 | 2027Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2027 | 2027Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2027 | 2027Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2027 | 2027Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2027 | 2027Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | 2027Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2027 | 2027Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2027 | 2027Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2027 | 2027Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2027 | 2027Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2027 | 2027Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2027 | 2027Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2027 | 2027Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2027 | 2027Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2027 | 2027Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2027 | 2027Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2027 | 2027Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2027 | 2027Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2027 | 2027Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2027 | 2027Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2027 | 2027Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2027 | 2027Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2027 | 2027Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2027 | 2027Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2027 | 2027Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2027 | 2027Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2027 | 2027Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2027 | 2027Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2027 | 2027Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2027 | 2027Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2027 | 2027Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2027 | 2027Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2027 | 2027Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2027 | 2027Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2027 | 2027Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2027 | 2027Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2027 | 2027Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2027 | 2027Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2027 | 2027Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2027 | 2027Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2027 | 2027Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2027 | 2027Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2027 | 2027Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2027 | 2027Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2027 | 2027Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2027 | 2027Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2027 | 2027Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2027 | 2027Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2027 | 2027Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2027 | 2027Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2027 | 2027Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2027 | 2027Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2027 | 2027Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2027 | 2027Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2027 | 2027Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2027 | 2027Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2027 | 2027Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2027 | 2027Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2027 | 2027Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2027 | 2027Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2027 | 2027Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | 2027Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2027 | 2027Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2027 | 2027Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2027 | 2027Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2027 | 2027Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2027 | 2027Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2027 | 2027Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2027 | 2027Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2027 | 2027Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2027 | 2027Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2027 | 2027Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2027 | 2027Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2027 | 2027Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2027 | 2027Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2027 | 2027Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2027 | 2027Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2027 | 2027Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2027 | 2027Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2027 | 2027Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2027 | 2027Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2027 | 2027Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2027 | 2027Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2027 | 2027Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2027 | 2027Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2027 | 2027Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2027 | 2027Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2027 | 2027Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2027 | 2027Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2027 | 2027Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2027 | 2027Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2027 | 2027Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2027 | 2027Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2027 | 2027Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2027 | 2027Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2027 | 2027Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2027 | 2027Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2027 | 2027Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2027 | 2027Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2027 | 2027Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2027 | 2027Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2027 | 2027Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2027 | 2027Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2027 | 2027Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2027 | 2027Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2027 | 2027Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2027 | 2027Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2027 | 2027Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2027 | 2027Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2027 | 2027Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2027 | 2027Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2027 | 2027Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2027 | 2027Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2027 | 2027Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2027 | 2027Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2027 | 2027Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2027 | 2027Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | 2027Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2027 | 2027Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2027 | 2027Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2027 | 2027Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2027 | 2027Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2027 | 2027Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2027 | 2027Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2027 | 2027Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2027 | 2027Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2027 | 2027Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2027 | 2027Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2027 | 2027Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2027 | 2027Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2027 | 2027Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2027 | 2027Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2027 | 2027Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2027 | 2027Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2027 | 2027Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2027 | 2027Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2027 | 2027Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2027 | 2027Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2027 | 2027Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2027 | 2027Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2027 | 2027Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2027 | 2027Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2027 | 2027Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2027 | 2027Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2027 | 2027Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2027 | 2027Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2027 | 2027Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2027 | 2027Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2028 | 2028Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2028 | 2028Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2028 | 2028Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2028 | 2028Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2028 | 2028Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2028 | 2028Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2028 | 2028Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2028 | 2028Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2028 | 2028Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2028 | 2028Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2028 | 2028Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2028 | 2028Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2028 | 2028Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2028 | 2028Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2028 | 2028Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2028 | 2028Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2028 | 2028Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2028 | 2028Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2028 | 2028Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2028 | 2028Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2028 | 2028Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2028 | 2028Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2028 | 2028Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2028 | 2028Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2028 | 2028Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | 2028Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2028 | 2028Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2028 | 2028Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2028 | 2028Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2028 | 2028Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2028 | 2028Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2028 | 2028Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2028 | 2028Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2028 | 2028Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2028 | 2028Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2028 | 2028Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2028 | 2028Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2028 | 2028Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2028 | 2028Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2028 | 2028Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2028 | 2028Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2028 | 2028Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2028 | 2028Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2028 | 2028Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2028 | 2028Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2028 | 2028Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2028 | 2028Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2028 | 2028Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2028 | 2028Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2028 | 2028Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2028 | 2028Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2028 | 2028Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2028 | 2028Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2028 | 2028Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2028 | 2028Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2028 | 2028Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2028 | 2028Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2028 | 2028Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2028 | 2028Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2028 | 2028Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2028 | 2028Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2028 | 2028Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2028 | 2028Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2028 | 2028Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2028 | 2028Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2028 | 2028Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2028 | 2028Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2028 | 2028Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2028 | 2028Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2028 | 2028Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2028 | 2028Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2028 | 2028Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2028 | 2028Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2028 | 2028Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2028 | 2028Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2028 | 2028Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2028 | 2028Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2028 | 2028Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2028 | 2028Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2028 | 2028Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2028 | 2028Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | 2028Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2028 | 2028Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2028 | 2028Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2028 | 2028Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2028 | 2028Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2028 | 2028Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2028 | 2028Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2028 | 2028Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2028 | 2028Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2028 | 2028Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2028 | 2028Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2028 | 2028Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2028 | 2028Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2028 | 2028Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2028 | 2028Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2028 | 2028Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2028 | 2028Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2028 | 2028Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2028 | 2028Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2028 | 2028Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2028 | 2028Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2028 | 2028Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2028 | 2028Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2028 | 2028Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2028 | 2028Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2028 | 2028Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2028 | 2028Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2028 | 2028Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2028 | 2028Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2028 | 2028Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2028 | 2028Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2028 | 2028Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2028 | 2028Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2028 | 2028Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2028 | 2028Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2028 | 2028Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2028 | 2028Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2028 | 2028Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2028 | 2028Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2028 | 2028Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2028 | 2028Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2028 | 2028Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2028 | 2028Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2028 | 2028Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2028 | 2028Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2028 | 2028Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2028 | 2028Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2028 | 2028Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2028 | 2028Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2028 | 2028Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2028 | 2028Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2028 | 2028Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2028 | 2028Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2028 | 2028Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2028 | 2028Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2028 | 2028Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | 2028Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2028 | 2028Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2028 | 2028Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2028 | 2028Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2028 | 2028Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2028 | 2028Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2028 | 2028Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2028 | 2028Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2028 | 2028Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2028 | 2028Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2028 | 2028Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2028 | 2028Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2028 | 2028Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2028 | 2028Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2028 | 2028Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2028 | 2028Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2028 | 2028Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2028 | 2028Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2028 | 2028Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2028 | 2028Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2028 | 2028Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2028 | 2028Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2028 | 2028Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2028 | 2028Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2028 | 2028Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2028 | 2028Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2028 | 2028Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2028 | 2028Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2028 | 2028Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2028 | 2028Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2028 | 2028Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2028 | 2028Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2028 | 2028Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2028 | 2028Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2028 | 2028Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2028 | 2028Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2028 | 2028Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2028 | 2028Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2028 | 2028Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2028 | 2028Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2028 | 2028Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2028 | 2028Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2028 | 2028Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2028 | 2028Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2028 | 2028Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2028 | 2028Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2028 | 2028Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2028 | 2028Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2028 | 2028Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2028 | 2028Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2028 | 2028Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2028 | 2028Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2028 | 2028Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2028 | 2028Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2028 | 2028Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2028 | 2028Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | 2028Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2028 | 2028Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2028 | 2028Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2028 | 2028Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2028 | 2028Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2028 | 2028Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2028 | 2028Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2028 | 2028Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2028 | 2028Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2028 | 2028Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2028 | 2028Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2028 | 2028Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2028 | 2028Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2028 | 2028Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2028 | 2028Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2028 | 2028Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2028 | 2028Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2028 | 2028Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2028 | 2028Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2028 | 2028Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2028 | 2028Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2028 | 2028Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2028 | 2028Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2028 | 2028Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2028 | 2028Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2028 | 2028Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2028 | 2028Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2028 | 2028Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2028 | 2028Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2028 | 2028Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2028 | 2028Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2028 | 2028Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2028 | 2028Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2028 | 2028Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2028 | 2028Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2028 | 2028Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2028 | 2028Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2028 | 2028Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2028 | 2028Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2028 | 2028Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2028 | 2028Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2028 | 2028Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2028 | 2028Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2028 | 2028Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2028 | 2028Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2028 | 2028Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2028 | 2028Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2028 | 2028Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2028 | 2028Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2029 | 2029Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2029 | 2029Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2029 | 2029Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2029 | 2029Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2029 | 2029Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2029 | 2029Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2029 | 2029Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 2029Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2029 | 2029Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2029 | 2029Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2029 | 2029Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2029 | 2029Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2029 | 2029Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2029 | 2029Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2029 | 2029Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2029 | 2029Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2029 | 2029Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2029 | 2029Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2029 | 2029Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2029 | 2029Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2029 | 2029Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2029 | 2029Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2029 | 2029Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2029 | 2029Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2029 | 2029Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2029 | 2029Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2029 | 2029Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2029 | 2029Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2029 | 2029Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2029 | 2029Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2029 | 2029Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2029 | 2029Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2029 | 2029Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2029 | 2029Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2029 | 2029Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2029 | 2029Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2029 | 2029Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2029 | 2029Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2029 | 2029Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2029 | 2029Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2029 | 2029Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2029 | 2029Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2029 | 2029Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2029 | 2029Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2029 | 2029Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2029 | 2029Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2029 | 2029Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2029 | 2029Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2029 | 2029Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2029 | 2029Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2029 | 2029Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2029 | 2029Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2029 | 2029Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2029 | 2029Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2029 | 2029Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2029 | 2029Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2029 | 2029Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2029 | 2029Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2029 | 2029Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2029 | 2029Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2029 | 2029Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2029 | 2029Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2029 | 2029Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 2029Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2029 | 2029Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2029 | 2029Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2029 | 2029Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2029 | 2029Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2029 | 2029Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2029 | 2029Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2029 | 2029Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2029 | 2029Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2029 | 2029Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2029 | 2029Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2029 | 2029Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2029 | 2029Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2029 | 2029Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2029 | 2029Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2029 | 2029Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2029 | 2029Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2029 | 2029Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2029 | 2029Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2029 | 2029Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2029 | 2029Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2029 | 2029Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2029 | 2029Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2029 | 2029Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2029 | 2029Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2029 | 2029Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2029 | 2029Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2029 | 2029Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2029 | 2029Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2029 | 2029Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2029 | 2029Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2029 | 2029Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2029 | 2029Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2029 | 2029Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2029 | 2029Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2029 | 2029Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2029 | 2029Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2029 | 2029Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2029 | 2029Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2029 | 2029Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2029 | 2029Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2029 | 2029Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2029 | 2029Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2029 | 2029Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2029 | 2029Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2029 | 2029Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2029 | 2029Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2029 | 2029Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2029 | 2029Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2029 | 2029Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2029 | 2029Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2029 | 2029Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2029 | 2029Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2029 | 2029Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2029 | 2029Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2029 | 2029Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 2029Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2029 | 2029Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2029 | 2029Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2029 | 2029Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2029 | 2029Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2029 | 2029Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2029 | 2029Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2029 | 2029Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2029 | 2029Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2029 | 2029Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2029 | 2029Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2029 | 2029Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2029 | 2029Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2029 | 2029Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2029 | 2029Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2029 | 2029Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2029 | 2029Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2029 | 2029Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2029 | 2029Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2029 | 2029Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2029 | 2029Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2029 | 2029Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2029 | 2029Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2029 | 2029Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2029 | 2029Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2029 | 2029Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2029 | 2029Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2029 | 2029Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2029 | 2029Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2029 | 2029Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2029 | 2029Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2029 | 2029Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2029 | 2029Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2029 | 2029Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2029 | 2029Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2029 | 2029Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2029 | 2029Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2029 | 2029Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2029 | 2029Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2029 | 2029Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2029 | 2029Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2029 | 2029Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2029 | 2029Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2029 | 2029Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2029 | 2029Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2029 | 2029Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2029 | 2029Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2029 | 2029Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2029 | 2029Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2029 | 2029Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2029 | 2029Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2029 | 2029Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2029 | 2029Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2029 | 2029Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2029 | 2029Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2029 | 2029Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 2029Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2029 | 2029Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2029 | 2029Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2029 | 2029Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2029 | 2029Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2029 | 2029Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2029 | 2029Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2029 | 2029Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2029 | 2029Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2029 | 2029Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2029 | 2029Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2029 | 2029Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2029 | 2029Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2029 | 2029Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2029 | 2029Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2029 | 2029Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2029 | 2029Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2029 | 2029Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2029 | 2029Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2029 | 2029Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2029 | 2029Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2029 | 2029Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2029 | 2029Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2029 | 2029Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2029 | 2029Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2029 | 2029Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2029 | 2029Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2029 | 2029Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2029 | 2029Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2029 | 2029Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2029 | 2029Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2029 | 2029Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2029 | 2029Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2029 | 2029Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2029 | 2029Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2029 | 2029Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2029 | 2029Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2029 | 2029Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2029 | 2029Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2029 | 2029Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2029 | 2029Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2029 | 2029Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2029 | 2029Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2029 | 2029Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2029 | 2029Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2029 | 2029Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2029 | 2029Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2029 | 2029Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2029 | 2029Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2029 | 2029Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2029 | 2029Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2029 | 2029Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2029 | 2029Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2029 | 2029Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2029 | 2029Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2029 | 2029Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | 2029Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2029 | 2029Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2029 | 2029Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2029 | 2029Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2029 | 2029Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2029 | 2029Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2029 | 2029Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2029 | 2029Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2029 | 2029Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2029 | 2029Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2029 | 2029Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2030 | 2030Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2030 | 2030Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2030 | 2030Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2030 | 2030Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2030 | 2030Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2030 | 2030Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2030 | 2030Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2030 | 2030Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2030 | 2030Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2030 | 2030Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2030 | 2030Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2030 | 2030Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2030 | 2030Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2030 | 2030Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2030 | 2030Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2030 | 2030Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2030 | 2030Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2030 | 2030Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2030 | 2030Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2030 | 2030Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2030 | 2030Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2030 | 2030Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2030 | 2030Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2030 | 2030Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2030 | 2030Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2030 | 2030Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2030 | 2030Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2030 | 2030Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2030 | 2030Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2030 | 2030Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2030 | 2030Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2030 | 2030Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2030 | 2030Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2030 | 2030Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2030 | 2030Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2030 | 2030Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2030 | 2030Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2030 | 2030Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2030 | 2030Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2030 | 2030Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2030 | 2030Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2030 | 2030Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2030 | 2030Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2030 | 2030Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2030 | 2030Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 2030Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2030 | 2030Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2030 | 2030Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2030 | 2030Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2030 | 2030Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2030 | 2030Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2030 | 2030Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2030 | 2030Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2030 | 2030Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2030 | 2030Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2030 | 2030Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2030 | 2030Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2030 | 2030Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2030 | 2030Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2030 | 2030Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2030 | 2030Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2030 | 2030Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2030 | 2030Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2030 | 2030Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2030 | 2030Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2030 | 2030Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2030 | 2030Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2030 | 2030Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2030 | 2030Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2030 | 2030Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2030 | 2030Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2030 | 2030Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2030 | 2030Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2030 | 2030Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2030 | 2030Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2030 | 2030Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2030 | 2030Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2030 | 2030Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2030 | 2030Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2030 | 2030Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2030 | 2030Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2030 | 2030Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2030 | 2030Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2030 | 2030Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2030 | 2030Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2030 | 2030Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2030 | 2030Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2030 | 2030Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2030 | 2030Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2030 | 2030Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2030 | 2030Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2030 | 2030Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2030 | 2030Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2030 | 2030Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2030 | 2030Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2030 | 2030Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2030 | 2030Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2030 | 2030Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2030 | 2030Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2030 | 2030Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2030 | 2030Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 2030Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2030 | 2030Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2030 | 2030Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2030 | 2030Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2030 | 2030Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2030 | 2030Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2030 | 2030Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2030 | 2030Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2030 | 2030Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2030 | 2030Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2030 | 2030Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2030 | 2030Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2030 | 2030Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2030 | 2030Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2030 | 2030Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2030 | 2030Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2030 | 2030Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2030 | 2030Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2030 | 2030Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2030 | 2030Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2030 | 2030Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2030 | 2030Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2030 | 2030Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2030 | 2030Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2030 | 2030Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2030 | 2030Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2030 | 2030Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2030 | 2030Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2030 | 2030Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2030 | 2030Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2030 | 2030Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2030 | 2030Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2030 | 2030Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2030 | 2030Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2030 | 2030Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2030 | 2030Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2030 | 2030Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2030 | 2030Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2030 | 2030Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2030 | 2030Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2030 | 2030Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2030 | 2030Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2030 | 2030Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2030 | 2030Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2030 | 2030Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2030 | 2030Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2030 | 2030Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2030 | 2030Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2030 | 2030Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2030 | 2030Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2030 | 2030Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2030 | 2030Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2030 | 2030Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2030 | 2030Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2030 | 2030Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2030 | 2030Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 2030Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2030 | 2030Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2030 | 2030Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2030 | 2030Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2030 | 2030Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2030 | 2030Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2030 | 2030Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2030 | 2030Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2030 | 2030Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2030 | 2030Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2030 | 2030Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2030 | 2030Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2030 | 2030Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2030 | 2030Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2030 | 2030Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2030 | 2030Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2030 | 2030Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2030 | 2030Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2030 | 2030Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2030 | 2030Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2030 | 2030Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2030 | 2030Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2030 | 2030Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2030 | 2030Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2030 | 2030Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2030 | 2030Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2030 | 2030Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2030 | 2030Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2030 | 2030Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2030 | 2030Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2030 | 2030Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2030 | 2030Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2030 | 2030Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2030 | 2030Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2030 | 2030Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2030 | 2030Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2030 | 2030Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2030 | 2030Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2030 | 2030Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2030 | 2030Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2030 | 2030Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2030 | 2030Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2030 | 2030Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2030 | 2030Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2030 | 2030Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2030 | 2030Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2030 | 2030Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2030 | 2030Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2030 | 2030Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2030 | 2030Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2030 | 2030Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2030 | 2030Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2030 | 2030Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2030 | 2030Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2030 | 2030Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2030 | 2030Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | 2030Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2030 | 2030Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2030 | 2030Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2030 | 2030Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2030 | 2030Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2030 | 2030Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2030 | 2030Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2030 | 2030Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2030 | 2030Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2030 | 2030Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2030 | 2030Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2030 | 2030Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2030 | 2030Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2030 | 2030Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2030 | 2030Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2030 | 2030Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2030 | 2030Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2030 | 2030Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2030 | 2030Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2030 | 2030Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2030 | 2030Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2030 | 2030Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2030 | 2030Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2030 | 2030Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2030 | 2030Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2030 | 2030Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2030 | 2030Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2030 | 2030Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2030 | 2030Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2031 | 2031Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2031 | 2031Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2031 | 2031Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2031 | 2031Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2031 | 2031Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2031 | 2031Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2031 | 2031Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2031 | 2031Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2031 | 2031Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2031 | 2031Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2031 | 2031Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2031 | 2031Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2031 | 2031Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2031 | 2031Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2031 | 2031Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2031 | 2031Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2031 | 2031Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2031 | 2031Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2031 | 2031Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2031 | 2031Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2031 | 2031Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2031 | 2031Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2031 | 2031Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2031 | 2031Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2031 | 2031Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2031 | 2031Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2031 | 2031Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | 2031Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2031 | 2031Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2031 | 2031Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2031 | 2031Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2031 | 2031Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2031 | 2031Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2031 | 2031Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2031 | 2031Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2031 | 2031Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2031 | 2031Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2031 | 2031Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2031 | 2031Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2031 | 2031Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2031 | 2031Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2031 | 2031Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2031 | 2031Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2031 | 2031Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2031 | 2031Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2031 | 2031Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2031 | 2031Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2031 | 2031Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2031 | 2031Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2031 | 2031Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2031 | 2031Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2031 | 2031Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2031 | 2031Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2031 | 2031Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2031 | 2031Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2031 | 2031Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2031 | 2031Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2031 | 2031Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2031 | 2031Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2031 | 2031Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2031 | 2031Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2031 | 2031Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2031 | 2031Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2031 | 2031Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2031 | 2031Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2031 | 2031Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2031 | 2031Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2031 | 2031Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2031 | 2031Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2031 | 2031Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2031 | 2031Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2031 | 2031Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2031 | 2031Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2031 | 2031Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2031 | 2031Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2031 | 2031Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2031 | 2031Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2031 | 2031Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2031 | 2031Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2031 | 2031Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2031 | 2031Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2031 | 2031Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2031 | 2031Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | 2031Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2031 | 2031Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2031 | 2031Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2031 | 2031Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2031 | 2031Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2031 | 2031Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2031 | 2031Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2031 | 2031Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2031 | 2031Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2031 | 2031Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2031 | 2031Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2031 | 2031Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2031 | 2031Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2031 | 2031Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2031 | 2031Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2031 | 2031Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2031 | 2031Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2031 | 2031Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2031 | 2031Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2031 | 2031Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2031 | 2031Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2031 | 2031Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2031 | 2031Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2031 | 2031Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2031 | 2031Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2031 | 2031Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2031 | 2031Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2031 | 2031Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2031 | 2031Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2031 | 2031Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2031 | 2031Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2031 | 2031Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2031 | 2031Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2031 | 2031Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2031 | 2031Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2031 | 2031Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2031 | 2031Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2031 | 2031Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2031 | 2031Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2031 | 2031Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2031 | 2031Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2031 | 2031Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2031 | 2031Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2031 | 2031Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2031 | 2031Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2031 | 2031Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2031 | 2031Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2031 | 2031Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2031 | 2031Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2031 | 2031Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2031 | 2031Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2031 | 2031Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2031 | 2031Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2031 | 2031Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2031 | 2031Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2031 | 2031Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | 2031Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2031 | 2031Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2031 | 2031Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2031 | 2031Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2031 | 2031Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2031 | 2031Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2031 | 2031Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2031 | 2031Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2031 | 2031Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2031 | 2031Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2031 | 2031Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2031 | 2031Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2031 | 2031Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2031 | 2031Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2031 | 2031Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2031 | 2031Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2031 | 2031Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2031 | 2031Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2031 | 2031Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2031 | 2031Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2031 | 2031Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2031 | 2031Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2031 | 2031Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2031 | 2031Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2031 | 2031Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2031 | 2031Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2031 | 2031Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2031 | 2031Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2031 | 2031Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2031 | 2031Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2031 | 2031Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2031 | 2031Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2031 | 2031Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2031 | 2031Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2031 | 2031Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2031 | 2031Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2031 | 2031Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2031 | 2031Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2031 | 2031Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2031 | 2031Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2031 | 2031Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2031 | 2031Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2031 | 2031Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2031 | 2031Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2031 | 2031Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2031 | 2031Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2031 | 2031Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2031 | 2031Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2031 | 2031Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2031 | 2031Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2031 | 2031Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2031 | 2031Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2031 | 2031Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2031 | 2031Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2031 | 2031Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2031 | 2031Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | 2031Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2031 | 2031Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2031 | 2031Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2031 | 2031Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2031 | 2031Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2031 | 2031Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2031 | 2031Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2031 | 2031Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2031 | 2031Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2031 | 2031Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2031 | 2031Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2031 | 2031Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2031 | 2031Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2031 | 2031Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2031 | 2031Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2031 | 2031Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2031 | 2031Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2031 | 2031Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2031 | 2031Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2031 | 2031Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2031 | 2031Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2031 | 2031Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2031 | 2031Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2031 | 2031Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2031 | 2031Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2031 | 2031Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2031 | 2031Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2031 | 2031Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2031 | 2031Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2031 | 2031Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2031 | 2031Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2031 | 2031Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2031 | 2031Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2031 | 2031Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2031 | 2031Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2031 | 2031Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2031 | 2031Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2031 | 2031Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2031 | 2031Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2031 | 2031Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2031 | 2031Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2031 | 2031Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2031 | 2031Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2031 | 2031Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2031 | 2031Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2031 | 2031Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2031 | 2031Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2033 | 2033Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2033 | 2033Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2033 | 2033Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2033 | 2033Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2033 | 2033Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2033 | 2033Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2033 | 2033Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2033 | 2033Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2033 | 2033Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2033 | 2033Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2033 | 2033Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2033 | 2033Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2033 | 2033Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2033 | 2033Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2033 | 2033Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2033 | 2033Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2033 | 2033Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2033 | 2033Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2033 | 2033Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2033 | 2033Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2033 | 2033Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2033 | 2033Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2033 | 2033Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2033 | 2033Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2033 | 2033Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2033 | 2033Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2033 | 2033Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2033 | 2033Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2033 | 2033Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2033 | 2033Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2033 | 2033Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2033 | 2033Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2033 | 2033Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2033 | 2033Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2033 | 2033Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2033 | 2033Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2033 | 2033Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2033 | 2033Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2033 | 2033Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2033 | 2033Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2033 | 2033Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2033 | 2033Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2033 | 2033Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2033 | 2033Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2033 | 2033Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2033 | 2033Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2033 | 2033Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2033 | 2033Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2033 | 2033Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2033 | 2033Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2033 | 2033Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2033 | 2033Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2033 | 2033Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2033 | 2033Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2033 | 2033Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2033 | 2033Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2033 | 2033Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2033 | 2033Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2033 | 2033Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2033 | 2033Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2033 | 2033Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2033 | 2033Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2033 | 2033Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2033 | 2033Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2033 | 2033Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2033 | 2033Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2033 | 2033Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2033 | 2033Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2033 | 2033Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2033 | 2033Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2033 | 2033Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2033 | 2033Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2033 | 2033Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2033 | 2033Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2033 | 2033Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2033 | 2033Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2033 | 2033Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2033 | 2033Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2033 | 2033Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2033 | 2033Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2033 | 2033Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2033 | 2033Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2033 | 2033Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2033 | 2033Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2033 | 2033Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2033 | 2033Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2033 | 2033Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2033 | 2033Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2033 | 2033Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2033 | 2033Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2033 | 2033Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2033 | 2033Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2033 | 2033Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2033 | 2033Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2033 | 2033Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2033 | 2033Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2033 | 2033Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2033 | 2033Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2033 | 2033Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2033 | 2033Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2033 | 2033Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2033 | 2033Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2033 | 2033Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2033 | 2033Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2033 | 2033Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2033 | 2033Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2033 | 2033Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2033 | 2033Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2033 | 2033Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2033 | 2033Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2033 | 2033Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2033 | 2033Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2033 | 2033Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2033 | 2033Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2033 | 2033Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2033 | 2033Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2033 | 2033Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2033 | 2033Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2033 | 2033Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2033 | 2033Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2033 | 2033Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2033 | 2033Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2033 | 2033Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2033 | 2033Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2033 | 2033Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2033 | 2033Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2033 | 2033Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2033 | 2033Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2033 | 2033Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2033 | 2033Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2033 | 2033Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2033 | 2033Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2033 | 2033Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2033 | 2033Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2033 | 2033Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2033 | 2033Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2033 | 2033Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2033 | 2033Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2033 | 2033Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2033 | 2033Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2033 | 2033Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2033 | 2033Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2033 | 2033Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2033 | 2033Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2033 | 2033Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2033 | 2033Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2033 | 2033Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2033 | 2033Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2033 | 2033Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2033 | 2033Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2033 | 2033Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2033 | 2033Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2033 | 2033Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2033 | 2033Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2033 | 2033Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2033 | 2033Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2033 | 2033Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2033 | 2033Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2033 | 2033Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2033 | 2033Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2033 | 2033Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2033 | 2033Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2033 | 2033Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2033 | 2033Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2033 | 2033Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2033 | 2033Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2033 | 2033Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2033 | 2033Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2033 | 2033Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2033 | 2033Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2033 | 2033Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2033 | 2033Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2033 | 2033Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2033 | 2033Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2033 | 2033Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2033 | 2033Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2033 | 2033Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2033 | 2033Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2033 | 2033Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2033 | 2033Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2033 | 2033Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2033 | 2033Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2033 | 2033Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2033 | 2033Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2033 | 2033Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2033 | 2033Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2033 | 2033Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2033 | 2033Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2033 | 2033Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2033 | 2033Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2033 | 2033Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2033 | 2033Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2033 | 2033Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2033 | 2033Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2033 | 2033Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2033 | 2033Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2033 | 2033Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2033 | 2033Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2033 | 2033Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2033 | 2033Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2033 | 2033Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2033 | 2033Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2033 | 2033Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2033 | 2033Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2033 | 2033Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2033 | 2033Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2033 | 2033Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2033 | 2033Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2033 | 2033Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2033 | 2033Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2033 | 2033Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2033 | 2033Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2033 | 2033Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2033 | 2033Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2033 | 2033Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2033 | 2033Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2033 | 2033Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2033 | 2033Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2033 | 2033Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2033 | 2033Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2033 | 2033Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2033 | 2033Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2033 | 2033Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2033 | 2033Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2033 | 2033Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2033 | 2033Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2033 | 2033Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2033 | 2033Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2033 | 2033Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2033 | 2033Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2033 | 2033Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2033 | 2033Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2033 | 2033Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2033 | 2033Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2033 | 2033Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2033 | 2033Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2033 | 2033Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2033 | 2033Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2035 | 2035Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2035 | 2035Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2035 | 2035Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2035 | 2035Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2035 | 2035Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2035 | 2035Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2035 | 2035Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2035 | 2035Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2035 | 2035Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2035 | 2035Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2035 | 2035Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2035 | 2035Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2035 | 2035Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2035 | 2035Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2035 | 2035Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2035 | 2035Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2035 | 2035Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2035 | 2035Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2035 | 2035Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2035 | 2035Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2035 | 2035Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2035 | 2035Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2035 | 2035Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2035 | 2035Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2035 | 2035Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2035 | 2035Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2035 | 2035Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2035 | 2035Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2035 | 2035Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2035 | 2035Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2035 | 2035Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2035 | 2035Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2035 | 2035Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2035 | 2035Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2035 | 2035Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2035 | 2035Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2035 | 2035Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2035 | 2035Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2035 | 2035Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2035 | 2035Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2035 | 2035Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2035 | 2035Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2035 | 2035Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2035 | 2035Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2035 | 2035Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2035 | 2035Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2035 | 2035Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2035 | 2035Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2035 | 2035Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2035 | 2035Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2035 | 2035Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2035 | 2035Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2035 | 2035Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2035 | 2035Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2035 | 2035Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2035 | 2035Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2035 | 2035Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2035 | 2035Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2035 | 2035Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2035 | 2035Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2035 | 2035Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2035 | 2035Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2035 | 2035Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2035 | 2035Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2035 | 2035Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2035 | 2035Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2035 | 2035Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2035 | 2035Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2035 | 2035Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2035 | 2035Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2035 | 2035Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2035 | 2035Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2035 | 2035Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2035 | 2035Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2035 | 2035Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2035 | 2035Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2035 | 2035Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2035 | 2035Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2035 | 2035Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2035 | 2035Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2035 | 2035Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2035 | 2035Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2035 | 2035Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2035 | 2035Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2035 | 2035Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2035 | 2035Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2035 | 2035Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2035 | 2035Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2035 | 2035Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2035 | 2035Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2035 | 2035Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2035 | 2035Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2035 | 2035Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2035 | 2035Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2035 | 2035Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2035 | 2035Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2035 | 2035Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2035 | 2035Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2035 | 2035Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2035 | 2035Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2035 | 2035Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2035 | 2035Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2035 | 2035Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2035 | 2035Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2035 | 2035Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2035 | 2035Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2035 | 2035Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2035 | 2035Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2035 | 2035Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2035 | 2035Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2035 | 2035Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2035 | 2035Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2035 | 2035Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2035 | 2035Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2035 | 2035Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2035 | 2035Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2035 | 2035Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2035 | 2035Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2035 | 2035Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2035 | 2035Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2035 | 2035Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2035 | 2035Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2035 | 2035Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2035 | 2035Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2035 | 2035Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2035 | 2035Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2035 | 2035Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2035 | 2035Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2035 | 2035Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2035 | 2035Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2035 | 2035Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2035 | 2035Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2035 | 2035Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2035 | 2035Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2035 | 2035Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2035 | 2035Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2035 | 2035Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2035 | 2035Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2035 | 2035Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2035 | 2035Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2035 | 2035Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2035 | 2035Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2035 | 2035Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2035 | 2035Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2035 | 2035Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2035 | 2035Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2035 | 2035Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2035 | 2035Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2035 | 2035Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2035 | 2035Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2035 | 2035Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2035 | 2035Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2035 | 2035Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2035 | 2035Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2035 | 2035Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2035 | 2035Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2035 | 2035Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2035 | 2035Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2035 | 2035Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2035 | 2035Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2035 | 2035Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2035 | 2035Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2035 | 2035Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2035 | 2035Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2035 | 2035Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2035 | 2035Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2035 | 2035Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2035 | 2035Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2035 | 2035Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2035 | 2035Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2035 | 2035Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2035 | 2035Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2035 | 2035Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2035 | 2035Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2035 | 2035Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2035 | 2035Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2035 | 2035Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2035 | 2035Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2035 | 2035Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2035 | 2035Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2035 | 2035Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2035 | 2035Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2035 | 2035Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2035 | 2035Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2035 | 2035Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2035 | 2035Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2035 | 2035Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2035 | 2035Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2035 | 2035Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2035 | 2035Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2035 | 2035Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2035 | 2035Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2035 | 2035Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2035 | 2035Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2035 | 2035Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2035 | 2035Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2035 | 2035Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2035 | 2035Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2035 | 2035Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2035 | 2035Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2035 | 2035Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2035 | 2035Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2035 | 2035Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2035 | 2035Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2035 | 2035Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2035 | 2035Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2035 | 2035Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2035 | 2035Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2035 | 2035Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2035 | 2035Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2035 | 2035Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2035 | 2035Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2035 | 2035Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2035 | 2035Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2035 | 2035Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2035 | 2035Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2035 | 2035Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2035 | 2035Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2035 | 2035Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2035 | 2035Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2035 | 2035Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2035 | 2035Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2035 | 2035Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2035 | 2035Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2035 | 2035Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2035 | 2035Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2035 | 2035Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2035 | 2035Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2035 | 2035Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2035 | 2035Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2035 | 2035Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2035 | 2035Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2035 | 2035Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2035 | 2035Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2035 | 2035Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2035 | 2035Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2035 | 2035Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2035 | 2035Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2035 | 2035Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2035 | 2035Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2035 | 2035Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2035 | 2035Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2037 | 2037Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2037 | 2037Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2037 | 2037Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2037 | 2037Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2037 | 2037Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2037 | 2037Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2037 | 2037Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2037 | 2037Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2037 | 2037Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2037 | 2037Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2037 | 2037Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2037 | 2037Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2037 | 2037Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2037 | 2037Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2037 | 2037Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2037 | 2037Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2037 | 2037Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2037 | 2037Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2037 | 2037Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2037 | 2037Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2037 | 2037Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2037 | 2037Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2037 | 2037Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2037 | 2037Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2037 | 2037Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2037 | 2037Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2037 | 2037Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2037 | 2037Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2037 | 2037Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 2037Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2037 | 2037Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2037 | 2037Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2037 | 2037Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2037 | 2037Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2037 | 2037Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2037 | 2037Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2037 | 2037Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2037 | 2037Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2037 | 2037Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2037 | 2037Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2037 | 2037Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2037 | 2037Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2037 | 2037Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2037 | 2037Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2037 | 2037Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2037 | 2037Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2037 | 2037Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2037 | 2037Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2037 | 2037Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2037 | 2037Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2037 | 2037Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2037 | 2037Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2037 | 2037Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2037 | 2037Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2037 | 2037Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2037 | 2037Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2037 | 2037Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2037 | 2037Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2037 | 2037Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2037 | 2037Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2037 | 2037Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2037 | 2037Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2037 | 2037Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2037 | 2037Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2037 | 2037Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2037 | 2037Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2037 | 2037Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2037 | 2037Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2037 | 2037Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2037 | 2037Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2037 | 2037Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2037 | 2037Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2037 | 2037Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2037 | 2037Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2037 | 2037Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2037 | 2037Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2037 | 2037Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2037 | 2037Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2037 | 2037Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2037 | 2037Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2037 | 2037Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2037 | 2037Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2037 | 2037Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2037 | 2037Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2037 | 2037Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 2037Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2037 | 2037Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2037 | 2037Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2037 | 2037Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2037 | 2037Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2037 | 2037Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2037 | 2037Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2037 | 2037Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2037 | 2037Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2037 | 2037Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2037 | 2037Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2037 | 2037Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2037 | 2037Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2037 | 2037Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2037 | 2037Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2037 | 2037Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2037 | 2037Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2037 | 2037Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2037 | 2037Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2037 | 2037Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2037 | 2037Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2037 | 2037Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2037 | 2037Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2037 | 2037Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2037 | 2037Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2037 | 2037Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2037 | 2037Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2037 | 2037Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2037 | 2037Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2037 | 2037Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2037 | 2037Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2037 | 2037Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2037 | 2037Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2037 | 2037Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2037 | 2037Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2037 | 2037Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2037 | 2037Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2037 | 2037Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2037 | 2037Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2037 | 2037Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2037 | 2037Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2037 | 2037Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2037 | 2037Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2037 | 2037Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2037 | 2037Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2037 | 2037Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2037 | 2037Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2037 | 2037Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2037 | 2037Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2037 | 2037Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2037 | 2037Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2037 | 2037Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2037 | 2037Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2037 | 2037Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2037 | 2037Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2037 | 2037Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 2037Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2037 | 2037Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2037 | 2037Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2037 | 2037Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2037 | 2037Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2037 | 2037Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2037 | 2037Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2037 | 2037Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2037 | 2037Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2037 | 2037Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2037 | 2037Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2037 | 2037Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2037 | 2037Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2037 | 2037Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2037 | 2037Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2037 | 2037Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2037 | 2037Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2037 | 2037Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2037 | 2037Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2037 | 2037Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2037 | 2037Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2037 | 2037Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2037 | 2037Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2037 | 2037Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2037 | 2037Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2037 | 2037Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2037 | 2037Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2037 | 2037Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2037 | 2037Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2037 | 2037Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2037 | 2037Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2037 | 2037Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2037 | 2037Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2037 | 2037Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2037 | 2037Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2037 | 2037Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2037 | 2037Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2037 | 2037Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2037 | 2037Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2037 | 2037Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2037 | 2037Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2037 | 2037Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2037 | 2037Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2037 | 2037Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2037 | 2037Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2037 | 2037Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2037 | 2037Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2037 | 2037Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2037 | 2037Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2037 | 2037Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2037 | 2037Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2037 | 2037Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2037 | 2037Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2037 | 2037Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2037 | 2037Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2037 | 2037Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2037 | 2037Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2037 | 2037Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2037 | 2037Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2037 | 2037Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2037 | 2037Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2037 | 2037Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2037 | 2037Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2037 | 2037Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2037 | 2037Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2037 | 2037Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2037 | 2037Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2037 | 2037Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2037 | 2037Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2037 | 2037Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2037 | 2037Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2037 | 2037Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2037 | 2037Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2037 | 2037Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2037 | 2037Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2037 | 2037Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2037 | 2037Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2037 | 2037Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2037 | 2037Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2037 | 2037Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2037 | 2037Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2037 | 2037Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2037 | 2037Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2037 | 2037Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2037 | 2037Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2037 | 2037Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2037 | 2037Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2037 | 2037Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2037 | 2037Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2037 | 2037Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2037 | 2037Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2037 | 2037Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2037 | 2037Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2037 | 2037Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2037 | 2037Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2037 | 2037Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2037 | 2037Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2037 | 2037Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2037 | 2037Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2037 | 2037Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2037 | 2037Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2038 | 2038Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2038 | 2038Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2038 | 2038Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2038 | 2038Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2038 | 2038Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2038 | 2038Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2038 | 2038Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2038 | 2038Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2038 | 2038Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2038 | 2038Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2038 | 2038Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2038 | 2038Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2038 | 2038Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2038 | 2038Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2038 | 2038Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2038 | 2038Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2038 | 2038Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2038 | 2038Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2038 | 2038Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2038 | 2038Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2038 | 2038Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2038 | 2038Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2038 | 2038Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2038 | 2038Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2038 | 2038Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2038 | 2038Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2038 | 2038Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2038 | 2038Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2038 | 2038Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2038 | 2038Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2038 | 2038Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2038 | 2038Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2038 | 2038Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2038 | 2038Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2038 | 2038Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2038 | 2038Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2038 | 2038Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2038 | 2038Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2038 | 2038Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2038 | 2038Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2038 | 2038Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2038 | 2038Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2038 | 2038Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2038 | 2038Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2038 | 2038Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2038 | 2038Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2038 | 2038Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2038 | 2038Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |
| 2038 | 2038Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2038 | 2038Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2038 | 2038Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2038 | 2038Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2038 | 2038Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2038 | 2038Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2038 | 2038Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2038 | 2038Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2038 | 2038Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2038 | 2038Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2038 | 2038Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2038 | 2038Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2038 | 2038Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2038 | 2038Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2038 | 2038Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2038 | 2038Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2038 | 2038Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2038 | 2038Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2038 | 2038Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2038 | 2038Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2038 | 2038Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2038 | 2038Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2038 | 2038Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2038 | 2038Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2038 | 2038Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2038 | 2038Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2038 | 2038Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2038 | 2038Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2038 | 2038Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2038 | 2038Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2038 | 2038Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2038 | 2038Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2038 | 2038Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2038 | 2038Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2038 | 2038Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2038 | 2038Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2038 | 2038Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2038 | 2038Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2038 | 2038Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2038 | 2038Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2038 | 2038Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2038 | 2038Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2038 | 2038Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2038 | 2038Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2038 | 2038Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2038 | 2038Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2038 | 2038Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2038 | 2038Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2038 | 2038Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2038 | 2038Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2038 | 2038Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2038 | 2038Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2038 | 2038Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2038 | 2038Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2038 | 2038Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |
| 2038 | 2038Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2038 | 2038Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2038 | 2038Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2038 | 2038Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2038 | 2038Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2038 | 2038Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2038 | 2038Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2038 | 2038Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2038 | 2038Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2038 | 2038Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2038 | 2038Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2038 | 2038Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2038 | 2038Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2038 | 2038Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2038 | 2038Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2038 | 2038Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2038 | 2038Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2038 | 2038Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2038 | 2038Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2038 | 2038Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2038 | 2038Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2038 | 2038Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2038 | 2038Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2038 | 2038Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2038 | 2038Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2038 | 2038Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2038 | 2038Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2038 | 2038Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2038 | 2038Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2038 | 2038Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2038 | 2038Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2038 | 2038Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2038 | 2038Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2038 | 2038Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2038 | 2038Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2038 | 2038Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2038 | 2038Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2038 | 2038Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2038 | 2038Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2038 | 2038Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2038 | 2038Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2038 | 2038Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2038 | 2038Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2038 | 2038Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2038 | 2038Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2038 | 2038Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2038 | 2038Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2038 | 2038Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2038 | 2038Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2038 | 2038Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2038 | 2038Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2038 | 2038Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2038 | 2038Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2038 | 2038Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2038 | 2038Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |
| 2038 | 2038Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2038 | 2038Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2038 | 2038Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2038 | 2038Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2038 | 2038Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2038 | 2038Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2038 | 2038Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2038 | 2038Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2038 | 2038Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2038 | 2038Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2038 | 2038Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2038 | 2038Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2038 | 2038Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2038 | 2038Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2038 | 2038Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2038 | 2038Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2038 | 2038Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2038 | 2038Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2038 | 2038Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2038 | 2038Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2038 | 2038Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2038 | 2038Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2038 | 2038Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2038 | 2038Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2038 | 2038Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2038 | 2038Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2038 | 2038Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2038 | 2038Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2038 | 2038Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2038 | 2038Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2038 | 2038Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2038 | 2038Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2038 | 2038Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2038 | 2038Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2038 | 2038Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2038 | 2038Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2038 | 2038Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2038 | 2038Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2038 | 2038Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2038 | 2038Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2038 | 2038Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2038 | 2038Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2038 | 2038Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2038 | 2038Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2038 | 2038Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2038 | 2038Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2038 | 2038Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2038 | 2038Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2038 | 2038Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2038 | 2038Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2038 | 2038Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2038 | 2038Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2038 | 2038Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2038 | 2038Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2038 | 2038Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |
| 2038 | 2038Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2038 | 2038Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2038 | 2038Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2038 | 2038Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2038 | 2038Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2038 | 2038Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2038 | 2038Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2038 | 2038Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2038 | 2038Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2038 | 2038Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2038 | 2038Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2038 | 2038Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2038 | 2038Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2038 | 2038Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2038 | 2038Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2038 | 2038Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2038 | 2038Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2038 | 2038Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2038 | 2038Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2038 | 2038Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2038 | 2038Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2038 | 2038Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2038 | 2038Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2038 | 2038Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2038 | 2038Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |
| 2041 | 2041Aerial Lifts15 | Aerial Lifts | 15 | 0.0101 | 0.0528 | 0.0631 | 0.0001 | 0.0025 | 8.7 | 0.0009 |
| 2041 | 2041Aerial Lifts25 | Aerial Lifts | 25 | 0.0132 | 0.0451 | 0.0838 | 0.0001 | 0.0032 | 11.0 | 0.0012 |
| 2041 | 2041Aerial Lifts50 | Aerial Lifts | 50 | 0.0168 | 0.1351 | 0.1218 | 0.0003 | 0.0035 | 19.6 | 0.0015 |
| 2041 | 2041Aerial Lifts120 | Aerial Lifts | 120 | 0.0176 | 0.2265 | 0.1496 | 0.0004 | 0.0063 | 38.1 | 0.0016 |
| 2041 | 2041Aerial Lifts500 | Aerial Lifts | 500 | 0.0580 | 0.3710 | 0.3660 | 0.0021 | 0.0109 | 213 | 0.0052 |
| 2041 | 2041Aerial Lifts750 | Aerial Lifts | 750 | 0.1054 | 0.6706 | 0.6753 | 0.0039 | 0.0199 | 385 | 0.0095 |
| 2041 | 2041Aerial Lifts Composite | Aerial Lifts Composite | | 0.0184 | 0.1646 | 0.1366 | 0.0004 | 0.0048 | 34.7 | 0.0017 |
| 2041 | 2041Air Compressors15 | Air Compressors | 15 | 0.0087 | 0.0444 | 0.0545 | 0.0001 | 0.0023 | 7.2 | 0.0008 |
| 2041 | 2041Air Compressors25 | Air Compressors | 25 | 0.0181 | 0.0605 | 0.1121 | 0.0002 | 0.0045 | 14.4 | 0.0016 |
| 2041 | 2041Air Compressors50 | Air Compressors | 50 | 0.0263 | 0.1911 | 0.1476 | 0.0003 | 0.0047 | 22.3 | 0.0024 |
| 2041 | 2041Air Compressors120 | Air Compressors | 120 | 0.0289 | 0.3023 | 0.1928 | 0.0006 | 0.0088 | 47.0 | 0.0026 |
| 2041 | 2041Air Compressors175 | Air Compressors | 175 | 0.0424 | 0.4998 | 0.2187 | 0.0010 | 0.0104 | 88.5 | 0.0038 |
| 2041 | 2041Air Compressors250 | Air Compressors | 250 | 0.0514 | 0.2531 | 0.2553 | 0.0015 | 0.0078 | 131 | 0.0046 |
| 2041 | 2041Air Compressors500 | Air Compressors | 500 | 0.0894 | 0.4292 | 0.4150 | 0.0023 | 0.0134 | 232 | 0.0081 |
| 2041 | 2041Air Compressors750 | Air Compressors | 750 | 0.1385 | 0.6633 | 0.6545 | 0.0036 | 0.0210 | 358 | 0.0125 |
| 2041 | 2041Air Compressors1000 | Air Compressors | 1000 | 0.1999 | 0.9265 | 2.5439 | 0.0049 | 0.0483 | 486 | 0.0180 |
| 2041 | 2041Air Compressors Composite | Air Compressors Composite | | 0.0349 | 0.3027 | 0.2104 | 0.0007 | 0.0088 | 63.6 | 0.0031 |
| 2041 | 2041Bore/Drill Rigs15 | Bore/Drill Rigs | 15 | 0.0120 | 0.0632 | 0.0754 | 0.0002 | 0.0029 | 10.3 | 0.0011 |
| 2041 | 2041Bore/Drill Rigs25 | Bore/Drill Rigs | 25 | 0.0193 | 0.0658 | 0.1219 | 0.0002 | 0.0046 | 16.0 | 0.0017 |
| 2041 | 2041Bore/Drill Rigs50 | Bore/Drill Rigs | 50 | 0.0190 | 0.2200 | 0.1662 | 0.0004 | 0.0009 | 31.0 | 0.0017 |
| 2041 | 2041Bore/Drill Rigs120 | Bore/Drill Rigs | 120 | 0.0252 | 0.4660 | 0.1955 | 0.0009 | 0.0020 | 77.1 | 0.0023 |
| 2041 | 2041Bore/Drill Rigs175 | Bore/Drill Rigs | 175 | 0.0324 | 0.7542 | 0.0787 | 0.0016 | 0.0030 | 141 | 0.0029 |
| 2041 | 2041Bore/Drill Rigs250 | Bore/Drill Rigs | 250 | 0.0427 | 0.3426 | 0.0981 | 0.0021 | 0.0035 | 188 | 0.0039 |
| 2041 | 2041Bore/Drill Rigs500 | Bore/Drill Rigs | 500 | 0.0706 | 0.5512 | 0.1622 | 0.0031 | 0.0058 | 311 | 0.0064 |
| 2041 | 2041Bore/Drill Rigs750 | Bore/Drill Rigs | 750 | 0.1396 | 1.0891 | 0.3204 | 0.0062 | 0.0115 | 615 | 0.0126 |
| 2041 | 2041Bore/Drill Rigs1000 | Bore/Drill Rigs | 1000 | 0.2115 | 1.6437 | 3.8912 | 0.0093 | 0.0364 | 928 | 0.0191 |
| 2041 | 2041Bore/Drill Rigs Composite | Bore/Drill Rigs Composite | | 0.0428 | 0.5007 | 0.2864 | 0.0017 | 0.0042 | 165 | 0.0039 |
| 2041 | 2041Cement and Mortar Mixers15 | Cement and Mortar Mixers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2041 | 2041Cement and Mortar Mixers25 | Cement and Mortar Mixers | 25 | 0.0213 | 0.0724 | 0.1346 | 0.0002 | 0.0052 | 17.6 | 0.0019 |
| 2041 | 2041Cement and Mortar Mixers Composite | Cement and Mortar Mixers Composite | | 0.0085 | 0.0414 | 0.0534 | 0.0001 | 0.0021 | 7.2 | 0.0008 |
| 2041 | 2041Concrete/Industrial Saws25 | Concrete/Industrial Saws | 25 | 0.0199 | 0.0678 | 0.1256 | 0.0002 | 0.0047 | 16.5 | 0.0018 |
| 2041 | 2041Concrete/Industrial Saws50 | Concrete/Industrial Saws | 50 | 0.0279 | 0.2284 | 0.1910 | 0.0004 | 0.0053 | 30.2 | 0.0025 |
| 2041 | 2041Concrete/Industrial Saws120 | Concrete/Industrial Saws | 120 | 0.0370 | 0.4561 | 0.2840 | 0.0009 | 0.0117 | 74.1 | 0.0033 |
| 2041 | 2041Concrete/Industrial Saws175 | Concrete/Industrial Saws | 175 | 0.0623 | 0.8663 | 0.3523 | 0.0018 | 0.0160 | 160 | 0.0056 |
| 2041 | 2041Concrete/Industrial Saws Composite | Concrete/Industrial Saws Composite | | 0.0337 | 0.3706 | 0.2471 | 0.0007 | 0.0093 | 58.5 | 0.0030 |
| 2041 | 2041Cranes50 | Cranes | 50 | 0.0350 | 0.2256 | 0.1644 | 0.0003 | 0.0062 | 23.2 | 0.0032 |
| 2041 | 2041Cranes120 | Cranes | 120 | 0.0376 | 0.3384 | 0.2298 | 0.0006 | 0.0120 | 50.1 | 0.0034 |
| 2041 | 2041Cranes175 | Cranes | 175 | 0.0462 | 0.4744 | 0.2300 | 0.0009 | 0.0120 | 80.3 | 0.0042 |
| 2041 | 2041Cranes250 | Cranes | 250 | 0.0544 | 0.2316 | 0.2705 | 0.0013 | 0.0094 | 112 | 0.0049 |
| 2041 | 2041Cranes500 | Cranes | 500 | 0.0858 | 0.3535 | 0.3977 | 0.0018 | 0.0146 | 180 | 0.0077 |
| 2041 | 2041Cranes750 | Cranes | 750 | 0.1446 | 0.5947 | 0.6821 | 0.0030 | 0.0248 | 303 | 0.0130 |
| 2041 | 2041Cranes9999 | Cranes | 9999 | 0.5219 | 1.9715 | 5.5760 | 0.0098 | 0.1146 | 971 | 0.0471 |
| 2041 | 2041Cranes Composite | Cranes Composite | | 0.0681 | 0.3738 | 0.4223 | 0.0014 | 0.0143 | 129 | 0.0061 |
| 2041 | 2041Crawler Tractors50 | Crawler Tractors | 50 | 0.0487 | 0.2566 | 0.1842 | 0.0003 | 0.0090 | 24.9 | 0.0044 |
| 2041 | 2041Crawler Tractors120 | Crawler Tractors | 120 | 0.0609 | 0.4537 | 0.3562 | 0.0008 | 0.0221 | 65.8 | 0.0055 |
| 2041 | 2041Crawler Tractors175 | Crawler Tractors | 175 | 0.0823 | 0.7265 | 0.4447 | 0.0014 | 0.0241 | 121 | 0.0074 |
| 2041 | 2041Crawler Tractors250 | Crawler Tractors | 250 | 0.0924 | 0.3662 | 0.5348 | 0.0019 | 0.0192 | 166 | 0.0083 |
| 2041 | 2041Crawler Tractors500 | Crawler Tractors | 500 | 0.1392 | 0.5877 | 0.7527 | 0.0025 | 0.0280 | 259 | 0.0126 |
| 2041 | 2041Crawler Tractors750 | Crawler Tractors | 750 | 0.2506 | 1.0528 | 1.3878 | 0.0047 | 0.0510 | 465 | 0.0226 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2041 | 2041Crawler Tractors1000 | Crawler Tractors | 1000 | 0.3749 | 1.5618 | 4.2168 | 0.0066 | 0.0958 | 658 | 0.0338 |
| 2041 | 2041Crawler Tractors Composite | Crawler Tractors Composite | | 0.0789 | 0.5065 | 0.4492 | 0.0013 | 0.0227 | 114 | 0.0071 |
| 2041 | 2041Crushing/Proc. Equipment50 | Crushing/Proc. Equipment | 50 | 0.0508 | 0.3859 | 0.2899 | 0.0006 | 0.0083 | 44.0 | 0.0046 |
| 2041 | 2041Crushing/Proc. Equipment120 | Crushing/Proc. Equipment | 120 | 0.0506 | 0.5406 | 0.3289 | 0.0010 | 0.0140 | 83.1 | 0.0046 |
| 2041 | 2041Crushing/Proc. Equipment175 | Crushing/Proc. Equipment | 175 | 0.0795 | 0.9556 | 0.3830 | 0.0019 | 0.0177 | 167 | 0.0072 |
| 2041 | 2041Crushing/Proc. Equipment250 | Crushing/Proc. Equipment | 250 | 0.0967 | 0.4768 | 0.4357 | 0.0028 | 0.0134 | 245 | 0.0087 |
| 2041 | 2041Crushing/Proc. Equipment500 | Crushing/Proc. Equipment | 500 | 0.1459 | 0.6977 | 0.6163 | 0.0037 | 0.0200 | 374 | 0.0132 |
| 2041 | 2041Crushing/Proc. Equipment750 | Crushing/Proc. Equipment | 750 | 0.2307 | 1.1003 | 0.9907 | 0.0059 | 0.0316 | 589 | 0.0208 |
| 2041 | 2041Crushing/Proc. Equipment9999 | Crushing/Proc. Equipment | 9999 | 0.6019 | 2.5014 | 6.6977 | 0.0131 | 0.1238 | 1,308 | 0.0543 |
| 2041 | 2041Crushing/Proc. Equipment Composite | Crushing/Proc. Equipment Composite | | 0.0693 | 0.6187 | 0.3763 | 0.0015 | 0.0146 | 132 | 0.0062 |
| 2041 | 2041Dumpers/Tenders25 | Dumpers/Tenders | 25 | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2041 | 2041Dumpers/Tenders Composite | Dumpers/Tenders Composite | | 0.0092 | 0.0314 | 0.0581 | 0.0001 | 0.0022 | 7.6 | 0.0008 |
| 2041 | 2041Excavators25 | Excavators | 25 | 0.0198 | 0.0677 | 0.1253 | 0.0002 | 0.0047 | 16.4 | 0.0018 |
| 2041 | 2041Excavators50 | Excavators | 50 | 0.0297 | 0.2365 | 0.1616 | 0.0003 | 0.0035 | 25.0 | 0.0027 |
| 2041 | 2041Excavators120 | Excavators | 120 | 0.0448 | 0.4942 | 0.2638 | 0.0009 | 0.0092 | 73.6 | 0.0040 |
| 2041 | 2041Excavators175 | Excavators | 175 | 0.0518 | 0.6636 | 0.1982 | 0.0013 | 0.0091 | 112 | 0.0047 |
| 2041 | 2041Excavators250 | Excavators | 250 | 0.0647 | 0.3210 | 0.2222 | 0.0018 | 0.0074 | 159 | 0.0058 |
| 2041 | 2041Excavators500 | Excavators | 500 | 0.0946 | 0.4495 | 0.3091 | 0.0023 | 0.0107 | 234 | 0.0085 |
| 2041 | 2041Excavators750 | Excavators | 750 | 0.1569 | 0.7451 | 0.5194 | 0.0039 | 0.0178 | 387 | 0.0142 |
| 2041 | 2041Excavators Composite | Excavators Composite | | 0.0559 | 0.5086 | 0.2269 | 0.0013 | 0.0086 | 120 | 0.0050 |
| 2041 | 2041Forklifts50 | Forklifts | 50 | 0.0150 | 0.1361 | 0.0904 | 0.0002 | 0.0013 | 14.7 | 0.0014 |
| 2041 | 2041Forklifts120 | Forklifts | 120 | 0.0168 | 0.2086 | 0.0997 | 0.0004 | 0.0023 | 31.2 | 0.0015 |
| 2041 | 2041Forklifts175 | Forklifts | 175 | 0.0228 | 0.3310 | 0.0732 | 0.0006 | 0.0029 | 56.1 | 0.0021 |
| 2041 | 2041Forklifts250 | Forklifts | 250 | 0.0289 | 0.1551 | 0.0746 | 0.0009 | 0.0027 | 77.1 | 0.0026 |
| 2041 | 2041Forklifts500 | Forklifts | 500 | 0.0416 | 0.2123 | 0.1038 | 0.0011 | 0.0038 | 111 | 0.0038 |
| 2041 | 2041Forklifts Composite | Forklifts Composite | | 0.0236 | 0.2148 | 0.0860 | 0.0006 | 0.0025 | 54.4 | 0.0021 |
| 2041 | 2041Generator Sets15 | Generator Sets | 15 | 0.0109 | 0.0627 | 0.0768 | 0.0002 | 0.0032 | 10.2 | 0.0010 |
| 2041 | 2041Generator Sets25 | Generator Sets | 25 | 0.0216 | 0.0738 | 0.1368 | 0.0002 | 0.0055 | 17.6 | 0.0019 |
| 2041 | 2041Generator Sets50 | Generator Sets | 50 | 0.0242 | 0.2034 | 0.1881 | 0.0004 | 0.0051 | 30.6 | 0.0022 |
| 2041 | 2041Generator Sets120 | Generator Sets | 120 | 0.0340 | 0.4585 | 0.3022 | 0.0009 | 0.0122 | 77.9 | 0.0031 |
| 2041 | 2041Generator Sets175 | Generator Sets | 175 | 0.0469 | 0.7328 | 0.3291 | 0.0016 | 0.0136 | 142 | 0.0042 |
| 2041 | 2041Generator Sets250 | Generator Sets | 250 | 0.0558 | 0.3746 | 0.3885 | 0.0024 | 0.0108 | 213 | 0.0050 |
| 2041 | 2041Generator Sets500 | Generator Sets | 500 | 0.0862 | 0.5820 | 0.5697 | 0.0033 | 0.0167 | 337 | 0.0078 |
| 2041 | 2041Generator Sets750 | Generator Sets | 750 | 0.1401 | 0.9395 | 0.9382 | 0.0055 | 0.0272 | 544 | 0.0126 |
| 2041 | 2041Generator Sets9999 | Generator Sets | 9999 | 0.3235 | 1.8648 | 5.2188 | 0.0105 | 0.0888 | 1,049 | 0.0292 |
| 2041 | 2041Generator Sets Composite | Generator Sets Composite | | 0.0288 | 0.2667 | 0.2329 | 0.0007 | 0.0081 | 61.0 | 0.0026 |
| 2041 | 2041Graders50 | Graders | 50 | 0.0382 | 0.2599 | 0.1877 | 0.0004 | 0.0063 | 27.5 | 0.0034 |
| 2041 | 2041Graders120 | Graders | 120 | 0.0521 | 0.5009 | 0.3219 | 0.0009 | 0.0153 | 75.0 | 0.0047 |
| 2041 | 2041Graders175 | Graders | 175 | 0.0652 | 0.7261 | 0.3117 | 0.0014 | 0.0157 | 124 | 0.0059 |
| 2041 | 2041Graders250 | Graders | 250 | 0.0781 | 0.3549 | 0.3652 | 0.0019 | 0.0129 | 172 | 0.0071 |
| 2041 | 2041Graders500 | Graders | 500 | 0.1023 | 0.4610 | 0.4468 | 0.0023 | 0.0165 | 229 | 0.0092 |
| 2041 | 2041Graders750 | Graders | 750 | 0.2167 | 0.9755 | 0.9628 | 0.0049 | 0.0353 | 486 | 0.0196 |
| 2041 | 2041Graders Composite | Graders Composite | | 0.0676 | 0.5696 | 0.3314 | 0.0015 | 0.0147 | 133 | 0.0061 |
| 2041 | 2041Off-Highway Tractors120 | Off-Highway Tractors | 120 | 0.1108 | 0.6619 | 0.6362 | 0.0011 | 0.0455 | 93.7 | 0.0100 |
| 2041 | 2041Off-Highway Tractors175 | Off-Highway Tractors | 175 | 0.1110 | 0.7932 | 0.6639 | 0.0015 | 0.0370 | 130 | 0.0100 |
| 2041 | 2041Off-Highway Tractors250 | Off-Highway Tractors | 250 | 0.0890 | 0.3179 | 0.5983 | 0.0015 | 0.0227 | 130 | 0.0080 |
| 2041 | 2041Off-Highway Tractors750 | Off-Highway Tractors | 750 | 0.3692 | 1.5358 | 2.4157 | 0.0057 | 0.0918 | 568 | 0.0333 |
| 2041 | 2041Off-Highway Tractors1000 | Off-Highway Tractors | 1000 | 0.5623 | 2.3619 | 6.0896 | 0.0082 | 0.1577 | 814 | 0.0507 |
| 2041 | 2041Off-Highway Tractors Composite | Off-Highway Tractors Composite | | 0.1134 | 0.6101 | 0.7291 | 0.0017 | 0.0331 | 151 | 0.0102 |
| 2041 | 2041Off-Highway Trucks175 | Off-Highway Trucks | 175 | 0.0622 | 0.7536 | 0.2376 | 0.0014 | 0.0112 | 125 | 0.0056 |
| 2041 | 2041Off-Highway Trucks250 | Off-Highway Trucks | 250 | 0.0730 | 0.3435 | 0.2521 | 0.0019 | 0.0085 | 167 | 0.0066 |
| 2041 | 2041Off-Highway Trucks500 | Off-Highway Trucks | 500 | 0.1183 | 0.5319 | 0.3878 | 0.0027 | 0.0135 | 272 | 0.0107 |
| 2041 | 2041Off-Highway Trucks750 | Off-Highway Trucks | 750 | 0.1921 | 0.8627 | 0.6384 | 0.0044 | 0.0221 | 442 | 0.0173 |
| 2041 | 2041Off-Highway Trucks1000 | Off-Highway Trucks | 1000 | 0.2823 | 1.2403 | 3.1782 | 0.0063 | 0.0546 | 625 | 0.0255 |
| 2041 | 2041Off-Highway Trucks Composite | Off-Highway Trucks Composite | | 0.1140 | 0.5385 | 0.4769 | 0.0027 | 0.0142 | 260 | 0.0103 |
| 2041 | 2041Other Construction Equipment15 | Other Construction Equipment | 15 | 0.0118 | 0.0617 | 0.0737 | 0.0002 | 0.0029 | 10.1 | 0.0011 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2041 | 2041Other Construction Equipment25 | Other Construction Equipment | 25 | 0.0159 | 0.0544 | 0.1008 | 0.0002 | 0.0038 | 13.2 | 0.0014 |
| 2041 | 2041Other Construction Equipment50 | Other Construction Equipment | 50 | 0.0244 | 0.2188 | 0.1693 | 0.0004 | 0.0034 | 28.0 | 0.0022 |
| 2041 | 2041Other Construction Equipment120 | Other Construction Equipment | 120 | 0.0379 | 0.5045 | 0.2730 | 0.0009 | 0.0087 | 80.9 | 0.0034 |
| 2041 | 2041Other Construction Equipment175 | Other Construction Equipment | 175 | 0.0384 | 0.5858 | 0.1729 | 0.0012 | 0.0075 | 107 | 0.0035 |
| 2041 | 2041Other Construction Equipment500 | Other Construction Equipment | 500 | 0.0792 | 0.4606 | 0.3034 | 0.0025 | 0.0099 | 254 | 0.0071 |
| 2041 | 2041Other Construction Equipment Composite | Other Construction Equipment Composite | | 0.0442 | 0.3474 | 0.2021 | 0.0013 | 0.0069 | 123 | 0.0040 |
| 2041 | 2041Other General Industrial Equipmen15 | Other General Industrial Equipmen | 15 | 0.0066 | 0.0391 | 0.0466 | 0.0001 | 0.0018 | 6.4 | 0.0006 |
| 2041 | 2041Other General Industrial Equipmen25 | Other General Industrial Equipmen | 25 | 0.0185 | 0.0632 | 0.1170 | 0.0002 | 0.0044 | 15.3 | 0.0017 |
| 2041 | 2041Other General Industrial Equipmen50 | Other General Industrial Equipmen | 50 | 0.0298 | 0.2099 | 0.1491 | 0.0003 | 0.0047 | 21.7 | 0.0027 |
| 2041 | 2041Other General Industrial Equipmen120 | Other General Industrial Equipmen | 120 | 0.0436 | 0.4189 | 0.2603 | 0.0007 | 0.0120 | 62.0 | 0.0039 |
| 2041 | 2041Other General Industrial Equipmen175 | Other General Industrial Equipmen | 175 | 0.0519 | 0.5684 | 0.2412 | 0.0011 | 0.0115 | 95.9 | 0.0047 |
| 2041 | 2041Other General Industrial Equipmen250 | Other General Industrial Equipmen | 250 | 0.0608 | 0.2743 | 0.2679 | 0.0015 | 0.0083 | 136 | 0.0055 |
| 2041 | 2041Other General Industrial Equipmen500 | Other General Industrial Equipmen | 500 | 0.1174 | 0.5103 | 0.4826 | 0.0026 | 0.0157 | 265 | 0.0106 |
| 2041 | 2041Other General Industrial Equipmen750 | Other General Industrial Equipmen | 750 | 0.1939 | 0.8411 | 0.8117 | 0.0044 | 0.0262 | 437 | 0.0175 |
| 2041 | 2041Other General Industrial Equipmen1000 | Other General Industrial Equipmen | 1000 | 0.2627 | 1.1060 | 2.9924 | 0.0056 | 0.0579 | 560 | 0.0237 |
| 2041 | 2041Other General Industrial Equipmen Composite | Other General Industrial Equipmen Composite | | 0.0747 | 0.4438 | 0.3947 | 0.0016 | 0.0130 | 152 | 0.0067 |
| 2041 | 2041Other Material Handling Equipment50 | Other Material Handling Equipment | 50 | 0.0410 | 0.2893 | 0.2073 | 0.0004 | 0.0065 | 30.3 | 0.0037 |
| 2041 | 2041Other Material Handling Equipment120 | Other Material Handling Equipment | 120 | 0.0421 | 0.4076 | 0.2541 | 0.0007 | 0.0117 | 60.7 | 0.0038 |
| 2041 | 2041Other Material Handling Equipment175 | Other Material Handling Equipment | 175 | 0.0653 | 0.7197 | 0.3067 | 0.0014 | 0.0146 | 122 | 0.0059 |
| 2041 | 2041Other Material Handling Equipment250 | Other Material Handling Equipment | 250 | 0.0642 | 0.2920 | 0.2863 | 0.0016 | 0.0088 | 145 | 0.0058 |
| 2041 | 2041Other Material Handling Equipment500 | Other Material Handling Equipment | 500 | 0.0837 | 0.3670 | 0.3482 | 0.0019 | 0.0113 | 192 | 0.0075 |
| 2041 | 2041Other Material Handling Equipment9999 | Other Material Handling Equipment | 9999 | 0.3781 | 1.4596 | 3.9555 | 0.0073 | 0.0764 | 741 | 0.0341 |
| 2041 | 2041Other Material Handling Equipment Composite | Other Material Handling Equipment Composite | | 0.0696 | 0.4355 | 0.3844 | 0.0015 | 0.0124 | 141 | 0.0063 |
| 2041 | 2041Pavers25 | Pavers | 25 | 0.0225 | 0.0768 | 0.1422 | 0.0002 | 0.0053 | 18.7 | 0.0020 |
| 2041 | 2041Pavers50 | Pavers | 50 | 0.0574 | 0.2803 | 0.2102 | 0.0004 | 0.0114 | 28.0 | 0.0052 |
| 2041 | 2041Pavers120 | Pavers | 120 | 0.0662 | 0.4696 | 0.4003 | 0.0008 | 0.0263 | 69.2 | 0.0060 |
| 2041 | 2041Pavers175 | Pavers | 175 | 0.0899 | 0.7543 | 0.5238 | 0.0014 | 0.0286 | 128 | 0.0081 |
| 2041 | 2041Pavers250 | Pavers | 250 | 0.1097 | 0.4287 | 0.7020 | 0.0022 | 0.0254 | 194 | 0.0099 |
| 2041 | 2041Pavers500 | Pavers | 500 | 0.1263 | 0.5374 | 0.7572 | 0.0023 | 0.0284 | 233 | 0.0114 |
| 2041 | 2041Pavers Composite | Pavers Composite | | 0.0717 | 0.4745 | 0.3858 | 0.0009 | 0.0220 | 77.9 | 0.0065 |
| 2041 | 2041Paving Equipment25 | Paving Equipment | 25 | 0.0152 | 0.0520 | 0.0963 | 0.0002 | 0.0036 | 12.6 | 0.0014 |
| 2041 | 2041Paving Equipment50 | Paving Equipment | 50 | 0.0469 | 0.2355 | 0.1789 | 0.0003 | 0.0095 | 23.9 | 0.0042 |
| 2041 | 2041Paving Equipment120 | Paving Equipment | 120 | 0.0503 | 0.3671 | 0.3092 | 0.0006 | 0.0200 | 54.5 | 0.0045 |
| 2041 | 2041Paving Equipment175 | Paving Equipment | 175 | 0.0687 | 0.5900 | 0.4021 | 0.0011 | 0.0219 | 101 | 0.0062 |
| 2041 | 2041Paving Equipment250 | Paving Equipment | 250 | 0.0672 | 0.2648 | 0.4289 | 0.0014 | 0.0154 | 122 | 0.0061 |
| 2041 | 2041Paving Equipment Composite | Paving Equipment Composite | | 0.0548 | 0.3993 | 0.3281 | 0.0008 | 0.0190 | 68.9 | 0.0049 |
| 2041 | 2041Plate Compactors15 | Plate Compactors | 15 | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2041 | 2041Plate Compactors Composite | Plate Compactors Composite | | 0.0050 | 0.0263 | 0.0314 | 0.0001 | 0.0012 | 4.3 | 0.0005 |
| 2041 | 2041Pressure Washers15 | Pressure Washers | 15 | 0.0052 | 0.0301 | 0.0368 | 0.0001 | 0.0015 | 4.9 | 0.0005 |
| 2041 | 2041Pressure Washers25 | Pressure Washers | 25 | 0.0087 | 0.0299 | 0.0555 | 0.0001 | 0.0022 | 7.1 | 0.0008 |
| 2041 | 2041Pressure Washers50 | Pressure Washers | 50 | 0.0079 | 0.0810 | 0.0843 | 0.0002 | 0.0019 | 14.3 | 0.0007 |
| 2041 | 2041Pressure Washers120 | Pressure Washers | 120 | 0.0082 | 0.1351 | 0.0897 | 0.0003 | 0.0031 | 24.1 | 0.0007 |
| 2041 | 2041Pressure Washers Composite | Pressure Washers Composite | | 0.0066 | 0.0531 | 0.0561 | 0.0001 | 0.0019 | 9.4 | 0.0006 |
| 2041 | 2041Pumps15 | Pumps | 15 | 0.0089 | 0.0456 | 0.0560 | 0.0001 | 0.0024 | 7.4 | 0.0008 |
| 2041 | 2041Pumps25 | Pumps | 25 | 0.0244 | 0.0816 | 0.1512 | 0.0002 | 0.0061 | 19.5 | 0.0022 |
| 2041 | 2041Pumps50 | Pumps | 50 | 0.0299 | 0.2394 | 0.2138 | 0.0004 | 0.0061 | 34.3 | 0.0027 |
| 2041 | 2041Pumps120 | Pumps | 120 | 0.0365 | 0.4656 | 0.3062 | 0.0009 | 0.0129 | 77.9 | 0.0033 |
| 2041 | 2041Pumps175 | Pumps | 175 | 0.0499 | 0.7342 | 0.3301 | 0.0016 | 0.0142 | 140 | 0.0045 |
| 2041 | 2041Pumps250 | Pumps | 250 | 0.0572 | 0.3604 | 0.3745 | 0.0023 | 0.0107 | 201 | 0.0052 |
| 2041 | 2041Pumps500 | Pumps | 500 | 0.0959 | 0.6034 | 0.5922 | 0.0034 | 0.0178 | 345 | 0.0087 |
| 2041 | 2041Pumps750 | Pumps | 750 | 0.1593 | 0.9975 | 0.9991 | 0.0057 | 0.0297 | 571 | 0.0144 |
| 2041 | 2041Pumps9999 | Pumps | 9999 | 0.4488 | 2.4388 | 6.8114 | 0.0136 | 0.1186 | 1,355 | 0.0405 |
| 2041 | 2041Pumps Composite | Pumps Composite | | 0.0270 | 0.2617 | 0.2079 | 0.0006 | 0.0078 | 49.6 | 0.0024 |
| 2041 | 2041Rollers15 | Rollers | 15 | 0.0074 | 0.0386 | 0.0461 | 0.0001 | 0.0018 | 6.3 | 0.0007 |
| 2041 | 2041Rollers25 | Rollers | 25 | 0.0161 | 0.0549 | 0.1017 | 0.0002 | 0.0038 | 13.3 | 0.0015 |
| 2041 | 2041Rollers50 | Rollers | 50 | 0.0345 | 0.2258 | 0.1776 | 0.0003 | 0.0068 | 26.0 | 0.0031 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2041 | 2041Rollers120 | Rollers | 120 | 0.0392 | 0.3801 | 0.2647 | 0.0007 | 0.0137 | 59.0 | 0.0035 |
| 2041 | 2041Rollers175 | Rollers | 175 | 0.0553 | 0.6096 | 0.3030 | 0.0012 | 0.0156 | 108 | 0.0050 |
| 2041 | 2041Rollers250 | Rollers | 250 | 0.0656 | 0.3037 | 0.3629 | 0.0017 | 0.0127 | 153 | 0.0059 |
| 2041 | 2041Rollers500 | Rollers | 500 | 0.0920 | 0.4189 | 0.4752 | 0.0022 | 0.0174 | 219 | 0.0083 |
| 2041 | 2041Rollers Composite | Rollers Composite | | 0.0410 | 0.3763 | 0.2501 | 0.0008 | 0.0122 | 67.0 | 0.0037 |
| 2041 | 2041Rough Terrain Forklifts50 | Rough Terrain Forklifts | 50 | 0.0381 | 0.3041 | 0.2193 | 0.0004 | 0.0054 | 33.9 | 0.0034 |
| 2041 | 2041Rough Terrain Forklifts120 | Rough Terrain Forklifts | 120 | 0.0369 | 0.4106 | 0.2316 | 0.0007 | 0.0087 | 62.4 | 0.0033 |
| 2041 | 2041Rough Terrain Forklifts175 | Rough Terrain Forklifts | 175 | 0.0569 | 0.7229 | 0.2450 | 0.0014 | 0.0112 | 125 | 0.0051 |
| 2041 | 2041Rough Terrain Forklifts250 | Rough Terrain Forklifts | 250 | 0.0671 | 0.3372 | 0.2625 | 0.0019 | 0.0084 | 171 | 0.0061 |
| 2041 | 2041Rough Terrain Forklifts500 | Rough Terrain Forklifts | 500 | 0.0999 | 0.4838 | 0.3682 | 0.0025 | 0.0123 | 257 | 0.0090 |
| 2041 | 2041Rough Terrain Forklifts Composite | Rough Terrain Forklifts Composite | | 0.0396 | 0.4430 | 0.2336 | 0.0008 | 0.0090 | 70.3 | 0.0036 |
| 2041 | 2041Rubber Tired Dozers175 | Rubber Tired Dozers | 175 | 0.1163 | 0.8019 | 0.6895 | 0.0015 | 0.0386 | 129 | 0.0105 |
| 2041 | 2041Rubber Tired Dozers250 | Rubber Tired Dozers | 250 | 0.1329 | 0.4624 | 0.8841 | 0.0021 | 0.0340 | 183 | 0.0120 |
| 2041 | 2041Rubber Tired Dozers500 | Rubber Tired Dozers | 500 | 0.1817 | 0.7490 | 1.1543 | 0.0026 | 0.0448 | 265 | 0.0164 |
| 2041 | 2041Rubber Tired Dozers750 | Rubber Tired Dozers | 750 | 0.2747 | 1.1262 | 1.7818 | 0.0040 | 0.0684 | 399 | 0.0248 |
| 2041 | 2041Rubber Tired Dozers1000 | Rubber Tired Dozers | 1000 | 0.4321 | 1.7954 | 4.5523 | 0.0060 | 0.1202 | 592 | 0.0390 |
| 2041 | 2041Rubber Tired Dozers Composite | Rubber Tired Dozers Composite | | 0.1672 | 0.6620 | 1.0824 | 0.0025 | 0.0419 | 239 | 0.0151 |
| 2041 | 2041Rubber Tired Loaders25 | Rubber Tired Loaders | 25 | 0.0204 | 0.0697 | 0.1291 | 0.0002 | 0.0048 | 16.9 | 0.0018 |
| 2041 | 2041Rubber Tired Loaders50 | Rubber Tired Loaders | 50 | 0.0418 | 0.2904 | 0.2109 | 0.0004 | 0.0069 | 31.1 | 0.0038 |
| 2041 | 2041Rubber Tired Loaders120 | Rubber Tired Loaders | 120 | 0.0397 | 0.3916 | 0.2476 | 0.0007 | 0.0115 | 58.9 | 0.0036 |
| 2041 | 2041Rubber Tired Loaders175 | Rubber Tired Loaders | 175 | 0.0546 | 0.6199 | 0.2592 | 0.0012 | 0.0130 | 106 | 0.0049 |
| 2041 | 2041Rubber Tired Loaders250 | Rubber Tired Loaders | 250 | 0.0661 | 0.3041 | 0.3040 | 0.0017 | 0.0107 | 149 | 0.0060 |
| 2041 | 2041Rubber Tired Loaders500 | Rubber Tired Loaders | 500 | 0.1034 | 0.4654 | 0.4455 | 0.0023 | 0.0164 | 237 | 0.0093 |
| 2041 | 2041Rubber Tired Loaders750 | Rubber Tired Loaders | 750 | 0.2119 | 0.9532 | 0.9273 | 0.0049 | 0.0338 | 486 | 0.0191 |
| 2041 | 2041Rubber Tired Loaders1000 | Rubber Tired Loaders | 1000 | 0.2701 | 1.1927 | 3.2272 | 0.0060 | 0.0615 | 594 | 0.0244 |
| 2041 | 2041Rubber Tired Loaders Composite | Rubber Tired Loaders Composite | | 0.0559 | 0.4311 | 0.2835 | 0.0012 | 0.0121 | 109 | 0.0050 |
| 2041 | 2041Scrapers120 | Scrapers | 120 | 0.0887 | 0.6472 | 0.5218 | 0.0011 | 0.0330 | 93.9 | 0.0080 |
| 2041 | 2041Scrapers175 | Scrapers | 175 | 0.1025 | 0.8864 | 0.5654 | 0.0017 | 0.0307 | 148 | 0.0092 |
| 2041 | 2041Scrapers250 | Scrapers | 250 | 0.1187 | 0.4642 | 0.7040 | 0.0024 | 0.0254 | 209 | 0.0107 |
| 2041 | 2041Scrapers500 | Scrapers | 500 | 0.1755 | 0.7332 | 0.9727 | 0.0032 | 0.0364 | 321 | 0.0158 |
| 2041 | 2041Scrapers750 | Scrapers | 750 | 0.3043 | 1.2657 | 1.7266 | 0.0056 | 0.0638 | 555 | 0.0275 |
| 2041 | 2041Scrapers Composite | Scrapers Composite | | 0.1495 | 0.7187 | 0.8387 | 0.0027 | 0.0335 | 262 | 0.0135 |
| 2041 | 2041Signal Boards15 | Signal Boards | 15 | 0.0072 | 0.0377 | 0.0450 | 0.0001 | 0.0018 | 6.2 | 0.0006 |
| 2041 | 2041Signal Boards50 | Signal Boards | 50 | 0.0332 | 0.2686 | 0.2268 | 0.0005 | 0.0063 | 36.2 | 0.0030 |
| 2041 | 2041Signal Boards120 | Signal Boards | 120 | 0.0394 | 0.4898 | 0.3076 | 0.0009 | 0.0127 | 80.2 | 0.0036 |
| 2041 | 2041Signal Boards175 | Signal Boards | 175 | 0.0587 | 0.8292 | 0.3433 | 0.0017 | 0.0152 | 155 | 0.0053 |
| 2041 | 2041Signal Boards250 | Signal Boards | 250 | 0.0794 | 0.4676 | 0.4435 | 0.0029 | 0.0132 | 255 | 0.0072 |
| 2041 | 2041Signal Boards Composite | Signal Boards Composite | | 0.0111 | 0.0909 | 0.0718 | 0.0002 | 0.0029 | 16.7 | 0.0010 |
| 2041 | 2041Skid Steer Loaders25 | Skid Steer Loaders | 25 | 0.0167 | 0.0568 | 0.1055 | 0.0002 | 0.0040 | 13.8 | 0.0015 |
| 2041 | 2041Skid Steer Loaders50 | Skid Steer Loaders | 50 | 0.0194 | 0.1977 | 0.1446 | 0.0003 | 0.0015 | 25.5 | 0.0017 |
| 2041 | 2041Skid Steer Loaders120 | Skid Steer Loaders | 120 | 0.0175 | 0.2665 | 0.1240 | 0.0005 | 0.0022 | 42.8 | 0.0016 |
| 2041 | 2041Skid Steer Loaders Composite | Skid Steer Loaders Composite | | 0.0186 | 0.2104 | 0.1354 | 0.0004 | 0.0019 | 30.3 | 0.0017 |
| 2041 | 2041Surfacing Equipment50 | Surfacing Equipment | 50 | 0.0171 | 0.1105 | 0.0934 | 0.0002 | 0.0035 | 14.1 | 0.0015 |
| 2041 | 2041Surfacing Equipment120 | Surfacing Equipment | 120 | 0.0385 | 0.3950 | 0.2869 | 0.0007 | 0.0146 | 63.8 | 0.0035 |
| 2041 | 2041Surfacing Equipment175 | Surfacing Equipment | 175 | 0.0386 | 0.4642 | 0.2429 | 0.0010 | 0.0119 | 85.8 | 0.0035 |
| 2041 | 2041Surfacing Equipment250 | Surfacing Equipment | 250 | 0.0504 | 0.2604 | 0.3275 | 0.0015 | 0.0111 | 135 | 0.0045 |
| 2041 | 2041Surfacing Equipment500 | Surfacing Equipment | 500 | 0.0800 | 0.4236 | 0.4893 | 0.0022 | 0.0174 | 221 | 0.0072 |
| 2041 | 2041Surfacing Equipment750 | Surfacing Equipment | 750 | 0.1260 | 0.6643 | 0.7833 | 0.0035 | 0.0275 | 347 | 0.0114 |
| 2041 | 2041Surfacing Equipment Composite | Surfacing Equipment Composite | | 0.0638 | 0.3590 | 0.3924 | 0.0017 | 0.0142 | 166 | 0.0058 |
| 2041 | 2041Sweepers/Scrubbers15 | Sweepers/Scrubbers | 15 | 0.0124 | 0.0729 | 0.0870 | 0.0002 | 0.0034 | 11.9 | 0.0011 |
| 2041 | 2041Sweepers/Scrubbers25 | Sweepers/Scrubbers | 25 | 0.0237 | 0.0808 | 0.1495 | 0.0002 | 0.0056 | 19.6 | 0.0021 |
| 2041 | 2041Sweepers/Scrubbers50 | Sweepers/Scrubbers | 50 | 0.0308 | 0.2762 | 0.1942 | 0.0004 | 0.0033 | 31.6 | 0.0028 |
| 2041 | 2041Sweepers/Scrubbers120 | Sweepers/Scrubbers | 120 | 0.0395 | 0.4895 | 0.2530 | 0.0009 | 0.0068 | 75.0 | 0.0036 |
| 2041 | 2041Sweepers/Scrubbers175 | Sweepers/Scrubbers | 175 | 0.0565 | 0.8005 | 0.2201 | 0.0016 | 0.0084 | 139 | 0.0051 |
| 2041 | 2041Sweepers/Scrubbers250 | Sweepers/Scrubbers | 250 | 0.0587 | 0.3179 | 0.1898 | 0.0018 | 0.0062 | 162 | 0.0053 |
| 2041 | 2041Sweepers/Scrubbers Composite | Sweepers/Scrubbers Composite | | 0.0410 | 0.4840 | 0.2255 | 0.0009 | 0.0061 | 78.5 | 0.0037 |

| Year | Code | Equipment | MaxHP | ROG | CO | NOX | SOX | PM | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2041 | 2041Tractors/Loaders/Backhoes25 | Tractors/Loaders/Backhoes | 25 | 0.0191 | 0.0653 | 0.1209 | 0.0002 | 0.0045 | 15.9 | 0.0017 |
| 2041 | 2041Tractors/Loaders/Backhoes50 | Tractors/Loaders/Backhoes | 50 | 0.0316 | 0.2678 | 0.1895 | 0.0004 | 0.0037 | 30.3 | 0.0029 |
| 2041 | 2041Tractors/Loaders/Backhoes120 | Tractors/Loaders/Backhoes | 120 | 0.0281 | 0.3379 | 0.1761 | 0.0006 | 0.0055 | 51.7 | 0.0025 |
| 2041 | 2041Tractors/Loaders/Backhoes175 | Tractors/Loaders/Backhoes | 175 | 0.0420 | 0.5839 | 0.1613 | 0.0011 | 0.0072 | 101 | 0.0038 |
| 2041 | 2041Tractors/Loaders/Backhoes250 | Tractors/Loaders/Backhoes | 250 | 0.0633 | 0.3389 | 0.2157 | 0.0019 | 0.0073 | 172 | 0.0057 |
| 2041 | 2041Tractors/Loaders/Backhoes500 | Tractors/Loaders/Backhoes | 500 | 0.1263 | 0.6506 | 0.4127 | 0.0039 | 0.0144 | 345 | 0.0114 |
| 2041 | 2041Tractors/Loaders/Backhoes750 | Tractors/Loaders/Backhoes | 750 | 0.1896 | 0.9760 | 0.6256 | 0.0058 | 0.0216 | 517 | 0.0171 |
| 2041 | 2041Tractors/Loaders/Backhoes Composite | Tractors/Loaders/Backhoes Composite | | 0.0336 | 0.3586 | 0.1857 | 0.0008 | 0.0059 | 66.8 | 0.0030 |
| 2041 | 2041Trenchers15 | Trenchers | 15 | 0.0099 | 0.0517 | 0.0617 | 0.0001 | 0.0024 | 8.5 | 0.0009 |
| 2041 | 2041Trenchers25 | Trenchers | 25 | 0.0397 | 0.1355 | 0.2509 | 0.0004 | 0.0094 | 32.9 | 0.0036 |
| 2041 | 2041Trenchers50 | Trenchers | 50 | 0.0687 | 0.3197 | 0.2467 | 0.0004 | 0.0140 | 32.9 | 0.0062 |
| 2041 | 2041Trenchers120 | Trenchers | 120 | 0.0625 | 0.4341 | 0.3863 | 0.0008 | 0.0259 | 64.9 | 0.0056 |
| 2041 | 2041Trenchers175 | Trenchers | 175 | 0.1009 | 0.8327 | 0.6152 | 0.0016 | 0.0338 | 144 | 0.0091 |
| 2041 | 2041Trenchers250 | Trenchers | 250 | 0.1247 | 0.4925 | 0.8480 | 0.0025 | 0.0309 | 223 | 0.0112 |
| 2041 | 2041Trenchers500 | Trenchers | 500 | 0.1661 | 0.7370 | 1.0663 | 0.0031 | 0.0400 | 311 | 0.0150 |
| 2041 | 2041Trenchers750 | Trenchers | 750 | 0.3147 | 1.3882 | 2.0666 | 0.0059 | 0.0766 | 587 | 0.0284 |
| 2041 | 2041Trenchers Composite | Trenchers Composite | | 0.0674 | 0.4085 | 0.3481 | 0.0007 | 0.0215 | 58.7 | 0.0061 |
| 2041 | 2041Welders15 | Welders | 15 | 0.0075 | 0.0381 | 0.0468 | 0.0001 | 0.0020 | 6.2 | 0.0007 |
| 2041 | 2041Welders25 | Welders | 25 | 0.0141 | 0.0473 | 0.0876 | 0.0001 | 0.0035 | 11.3 | 0.0013 |
| 2041 | 2041Welders50 | Welders | 50 | 0.0280 | 0.2077 | 0.1684 | 0.0003 | 0.0053 | 26.0 | 0.0025 |
| 2041 | 2041Welders120 | Welders | 120 | 0.0223 | 0.2476 | 0.1601 | 0.0005 | 0.0073 | 39.5 | 0.0020 |
| 2041 | 2041Welders175 | Welders | 175 | 0.0430 | 0.5400 | 0.2396 | 0.0011 | 0.0111 | 98.2 | 0.0039 |
| 2041 | 2041Welders250 | Welders | 250 | 0.0423 | 0.2236 | 0.2294 | 0.0013 | 0.0069 | 119 | 0.0038 |
| 2041 | 2041Welders500 | Welders | 500 | 0.0585 | 0.3040 | 0.2969 | 0.0016 | 0.0095 | 168 | 0.0053 |
| 2041 | 2041Welders Composite | Welders Composite | | 0.0214 | 0.1745 | 0.1373 | 0.0003 | 0.0052 | 25.6 | 0.0019 |

**Construction Prior to 2019**

**Approach:** Construction equipment used prior to the year 2021 would be equipped with engines meeting CARB requirements for a large fleet at the time of construction. In-Use Off-Road Diesel Fleet Regulation fleet targets for NOx are used to calculate NOx emissions. Source: Table 3 of the ARB In-Use Off-Road Diesel Fleet Regulation (http://www.arb.ca.gov/msprog/ordiesel/documents/finalregorder-dec2011.pdf).

| Emission Factors by Year [1, 2] | | | | | | |
|---|---|---|---|---|---|---|
| Year+Range | Year | Engine Size (hp) | | Range | NOx EFs (lbs/bhp-hr) | NOx EFs (g/bhp-hr) |
| | | Min | Max | | | |
| 20141 | 2014 | 0 | 24 | 1 | 0.0128 | 5.8 |
| 20142 | 2014 | 25 | 49 | 2 | 0.0128 | 5.8 |
| 20143 | 2014 | 50 | 74 | 3 | 0.0143 | 6.5 |
| 20144 | 2014 | 75 | 99 | 4 | 0.0157 | 7.1 |
| 20145 | 2014 | 100 | 174 | 5 | 0.0141 | 6.4 |
| 20146 | 2014 | 175 | 299 | 6 | 0.0137 | 6.2 |
| 20147 | 2014 | 300 | 599 | 7 | 0.0130 | 5.9 |
| 20151 | 2015 | 0 | 24 | 1 | 0.0123 | 5.6 |
| 20152 | 2015 | 25 | 49 | 2 | 0.0123 | 5.6 |
| 20153 | 2015 | 50 | 74 | 3 | 0.0137 | 6.2 |
| 20154 | 2015 | 75 | 99 | 4 | 0.0148 | 6.7 |
| 20155 | 2015 | 100 | 174 | 5 | 0.0132 | 6.0 |
| 20156 | 2015 | 175 | 299 | 6 | 0.0128 | 5.8 |
| 20157 | 2015 | 300 | 599 | 7 | 0.0121 | 5.5 |
| 20161 | 2016 | 0 | 24 | 1 | 0.0117 | 5.3 |
| 20162 | 2016 | 25 | 49 | 2 | 0.0117 | 5.3 |
| 20163 | 2016 | 50 | 74 | 3 | 0.0128 | 5.8 |
| 20164 | 2016 | 75 | 99 | 4 | 0.0137 | 6.2 |
| 20165 | 2016 | 100 | 174 | 5 | 0.0121 | 5.5 |
| 20166 | 2016 | 175 | 299 | 6 | 0.0117 | 5.3 |
| 20167 | 2016 | 300 | 599 | 7 | 0.0112 | 5.1 |
| 20171 | 2017 | 0 | 24 | 1 | 0.0110 | 5.0 |
| 20172 | 2017 | 25 | 49 | 2 | 0.0110 | 5.0 |
| 20173 | 2017 | 50 | 74 | 3 | 0.0119 | 5.4 |
| 20174 | 2017 | 75 | 99 | 4 | 0.0121 | 5.5 |
| 20175 | 2017 | 100 | 174 | 5 | 0.0108 | 4.9 |
| 20176 | 2017 | 175 | 299 | 6 | 0.0104 | 4.7 |
| 20177 | 2017 | 300 | 599 | 7 | 0.0099 | 4.5 |
| 20181 | 2018 | 0 | 24 | 1 | 0.0104 | 4.7 |
| 20182 | 2018 | 25 | 49 | 2 | 0.0104 | 4.7 |
| 20183 | 2018 | 50 | 74 | 3 | 0.0110 | 5.0 |
| 20184 | 2018 | 75 | 99 | 4 | 0.0106 | 4.8 |
| 20185 | 2018 | 100 | 174 | 5 | 0.0095 | 4.3 |
| 20186 | 2018 | 175 | 299 | 6 | 0.0090 | 4.1 |
| 20187 | 2018 | 300 | 599 | 7 | 0.0088 | 4.0 |
| 20191 | 2019 | 0 | 24 | 1 | 0.0097 | 4.4 |
| 20192 | 2019 | 25 | 49 | 2 | 0.0097 | 4.4 |
| 20193 | 2019 | 50 | 74 | 3 | 0.0101 | 4.6 |
| 20194 | 2019 | 75 | 99 | 4 | 0.0090 | 4.1 |
| 20195 | 2019 | 100 | 174 | 5 | 0.0082 | 3.7 |
| 20196 | 2019 | 175 | 299 | 6 | 0.0077 | 3.5 |
| 20197 | 2019 | 300 | 599 | 7 | 0.0075 | 3.4 |

**Construction Prior to 2019**

| | | | | | | |
|---|---|---|---|---|---|---|
| 20201 | 2020 | 0 | 24 | 1 | 0.0090 | 4.1 |
| 20202 | 2020 | 25 | 49 | 2 | 0.0090 | 4.1 |
| 20203 | 2020 | 50 | 74 | 3 | 0.0093 | 4.2 |
| 20204 | 2020 | 75 | 99 | 4 | 0.0075 | 3.4 |
| 20205 | 2020 | 100 | 174 | 5 | 0.0068 | 3.1 |
| 20206 | 2020 | 175 | 299 | 6 | 0.0064 | 2.9 |
| 20207 | 2020 | 300 | 599 | 7 | 0.0062 | 2.8 |
| 20211 | 2021 | 0 | 24 | 1 | 0.0084 | 3.8 |
| 20212 | 2021 | 25 | 49 | 2 | 0.0084 | 3.8 |
| 20213 | 2021 | 50 | 74 | 3 | 0.0084 | 3.8 |
| 20214 | 2021 | 75 | 99 | 4 | 0.0060 | 2.7 |
| 20215 | 2021 | 100 | 174 | 5 | 0.0055 | 2.5 |
| 20216 | 2021 | 175 | 299 | 6 | 0.0051 | 2.3 |
| 20217 | 2021 | 300 | 599 | 7 | 0.0049 | 2.2 |
| 20221 | 2022 | 0 | 24 | 1 | 0.0077 | 3.5 |
| 20222 | 2022 | 25 | 49 | 2 | 0.0077 | 3.5 |
| 20223 | 2022 | 50 | 74 | 3 | 0.0075 | 3.4 |
| 20224 | 2022 | 75 | 99 | 4 | 0.0044 | 2.0 |
| 20225 | 2022 | 100 | 174 | 5 | 0.0042 | 1.9 |
| 20226 | 2022 | 175 | 299 | 6 | 0.0037 | 1.7 |
| 20227 | 2022 | 300 | 599 | 7 | 0.0037 | 1.7 |
| 20231 | 2023 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20232 | 2023 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20233 | 2023 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20234 | 2023 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20235 | 2023 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20236 | 2023 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20237 | 2023 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20241 | 2024 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20242 | 2024 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20243 | 2024 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20244 | 2024 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20245 | 2024 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20246 | 2024 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20247 | 2024 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20251 | 2025 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20252 | 2025 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20253 | 2025 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20254 | 2025 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20255 | 2025 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20256 | 2025 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20257 | 2025 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20261 | 2026 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20262 | 2026 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20263 | 2026 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20264 | 2026 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20265 | 2026 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20266 | 2026 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20267 | 2026 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20271 | 2027 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20272 | 2027 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20273 | 2027 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20274 | 2027 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20275 | 2027 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20276 | 2027 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20277 | 2027 | 300 | 599 | 7 | 0.0033 | 1.5 |

**Construction Prior to 2019**

| | | | | | | |
|---|---|---|---|---|---|---|
| 20281 | 2028 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20282 | 2028 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20283 | 2028 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20284 | 2028 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20285 | 2028 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20286 | 2028 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20287 | 2028 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20291 | 2029 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20292 | 2029 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20293 | 2029 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20294 | 2029 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20295 | 2029 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20296 | 2029 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20297 | 2029 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20301 | 2030 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20302 | 2030 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20303 | 2030 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20304 | 2030 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20305 | 2030 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20306 | 2030 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20307 | 2030 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20311 | 2031 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20312 | 2031 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20313 | 2031 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20314 | 2031 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20315 | 2031 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20316 | 2031 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20317 | 2031 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20321 | 2032 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20322 | 2032 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20323 | 2032 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20324 | 2032 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20325 | 2032 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20326 | 2032 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20327 | 2032 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20331 | 2033 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20332 | 2033 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20333 | 2033 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20334 | 2033 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20335 | 2033 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20336 | 2033 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20337 | 2033 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20341 | 2034 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20342 | 2034 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20343 | 2034 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20344 | 2034 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20345 | 2034 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20346 | 2034 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20347 | 2034 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20351 | 2035 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20352 | 2035 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20353 | 2035 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20354 | 2035 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20355 | 2035 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20356 | 2035 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20357 | 2035 | 300 | 599 | 7 | 0.0033 | 1.5 |

**Construction Prior to 2019**

| | | | | | | |
|---|---|---|---|---|---|---|
| 20361 | 2036 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20362 | 2036 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20363 | 2036 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20364 | 2036 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20365 | 2036 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20366 | 2036 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20367 | 2036 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20371 | 2037 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20372 | 2037 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20373 | 2037 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20374 | 2037 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20375 | 2037 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20376 | 2037 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20377 | 2037 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20381 | 2038 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20382 | 2038 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20383 | 2038 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20384 | 2038 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20385 | 2038 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20386 | 2038 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20387 | 2038 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20391 | 2039 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20392 | 2039 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20393 | 2039 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20394 | 2039 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20395 | 2039 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20396 | 2039 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20397 | 2039 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20401 | 2040 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20402 | 2040 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20403 | 2040 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20404 | 2040 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20405 | 2040 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20406 | 2040 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20407 | 2040 | 300 | 599 | 7 | 0.0033 | 1.5 |
| 20411 | 2041 | 0 | 24 | 1 | 0.0073 | 3.3 |
| 20412 | 2041 | 25 | 49 | 2 | 0.0073 | 3.3 |
| 20413 | 2041 | 50 | 74 | 3 | 0.0066 | 3.0 |
| 20414 | 2041 | 75 | 99 | 4 | 0.0031 | 1.4 |
| 20415 | 2041 | 100 | 174 | 5 | 0.0029 | 1.3 |
| 20416 | 2041 | 175 | 299 | 6 | 0.0033 | 1.5 |
| 20417 | 2041 | 300 | 599 | 7 | 0.0033 | 1.5 |

Notes:

[1] ARB In-Use Off-Road Diesel Reg NOx targets do not include equipment with horsepower ranging from 0-24 hp. Emissions factors are assumed to be the same as equipment from 25-49 hp.

[2] ARB In-Use Off-Road Diesel Reg NOx targets end at year 2023. Years 2024-2041 are conservatively assumed to have the same emission factors as year 2023.

**Construction Beginning with the Year 2019 and Operation**

**Approach:** Off-road diesel operation equipment purchased as part of the proposed project and off-road diesel construction equipment beginning with the year 2021 would be equipped with engines meeting Tier 4 Final emission standards. Source: Table 3.5 of CalEEMod Appendix D (http://www.aqmd.gov/docs/default-source/caleemod/caleemod-appendixd.pdf?sfvrsn=2).

| Emission Factors by Year [1] | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Engine Size (hp) [1] | | | Tier 4f (g/bhp-hr) | | | | | Tier 4f (lbs/bhp-hr) | | | | |
| Min | Max | Range | CO | VOC | $NO_x$ (final) | $PM_{10}$ | $PM_{2.5}$ | CO | VOC | $NO_x$ (final) | $PM_{10}$ | $PM_{2.5}$ |
| 0 | 24 | 1 | 4.1 | 0.12 | 2.75 | 0.008 | 0.008 | 0.009039 | 0.000265 | 0.006063 | 1.764E-05 | 1.7637E-05 |
| 25 | 49 | 2 | 4.1 | 0.12 | 2.75 | 0.008 | 0.008 | 0.009039 | 0.000265 | 0.006063 | 1.764E-05 | 1.7637E-05 |
| 50 | 74 | 3 | 3.7 | 0.12 | 2.74 | 0.008 | 0.008 | 0.008157 | 0.000265 | 0.006041 | 1.764E-05 | 1.7637E-05 |
| 75 | 119 | 4 | 3.7 | 0.06 | 0.26 | 0.008 | 0.008 | 0.008157 | 0.000132 | 0.000573 | 1.764E-05 | 1.7637E-05 |
| 120 | 174 | 5 | 3.7 | 0.06 | 0.26 | 0.008 | 0.008 | 0.008157 | 0.000132 | 0.000573 | 1.764E-05 | 1.7637E-05 |
| 175 | 299 | 6 | 2.2 | 0.06 | 0.26 | 0.008 | 0.008 | 0.00485 | 0.000132 | 0.000573 | 1.764E-05 | 1.7637E-05 |
| 300 | 599 | 7 | 2.2 | 0.06 | 0.26 | 0.008 | 0.008 | 0.00485 | 0.000132 | 0.000573 | 1.764E-05 | 1.7637E-05 |

[1] Tier EFs not available for equipment with less than 25 hp; EFs assumed equal to EFs for equipment with 25-49 hp.

453.592 g/lb

## EMFAC2014 Onroad Vehicle Emission Factors

### EMFAC2014: Passenger Cars (LDA), Light-Duty Trucks (LDT2), Light-Heavy-Duty Trucks (LHD2),

Exhaust emission factors from EMFAC2014 for Los Angeles (SC). A speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions. Version: EMFAC2014 Version 1.0.7. Run date: 2015/9/22 13:48; Season: Annual; Area: Los Angeles (SC); EMFAC2011 Vehicle Categories; Fuel: Gasoline.

### EMFAC2014: Medium-Heavy-Duty Trucks (MHDT), Heavy-Heavy-Duty Trucks (HHDT)

Exhaust emission factors from EMFAC2014 for Los Angeles (SC); EMFAC2011 Vehicle Categories; Region: Los Angeles (SC); Season: Annual Average; Fuel: Diesel; Speed: 40mph (combined speeds for PM fugitive and SOx). MHDT is average of T6 instate construction heavy, T6 instate construction small, T6 instate heavy, T6 instate small, and T6 Public. HHDT is T7 SWCV (Solid Waste Collection Truck). EMFAC does not predict methane emissions from MHDT and HHDT.

Running Exhaust Emissions **(grams/mile)**

| Year | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$-Tire Wear | $PM_{10}$-Break Wear | PM10 Fugitive | $PM_{2.5}$ | $PM^{2.5}$-Tire Wear | $PM^{2.5}$-Break Wear (Fugitive) | PM2.5 Fugitive | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi |
| 2017 | Heavy-Heavy Duty Trucks | HHDT | 0.01344 | 14.4334 | 0.0015 | 0.037 | 0.0121 | 0.036 | 0.06174 | 0.09774 | 0.01154 | 0.009 | 0.02646 | 0.03546 | 3862.76 | 6.9451E-05 |
| 2017 | Medium-Heavy Duty Trucks | MHDT | 0.42205 | 3.83443 | 0.1219 | 0.011 | 0.0668 | 0.012 | 0.13034 | 0.14234 | 0.06393786 | 0.003 | 0.05586 | 0.05886 | 1151.1 | 0.00566193 |
| 2017 | Light-Heavy Duty Trucks | LHD2 | 1.0114 | 0.27602 | 0.03581 | 0.008 | 0.001 | 0.008 | 0.08918 | 0.09718 | 0.00089 | 0.002 | 0.03822 | 0.04022 | 760.854 | 0.014054 |
| 2017 | Light-Duty Trucks | LDT2 | 1.19622 | 0.12755 | 0.02472 | 0.004 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001385 | 0.002 | 0.01575 | 0.01775 | 349.742 | 0.008557 |
| 2017 | Passenger Cars | LDA | 0.912 | 0.07586 | 0.01935 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00140696 | 0.002 | 0.01575 | 0.01775 | 261.084 | 0.00649135 |
| 2017 | Light-Light Duty Trucks | LDT1 | 2.42105 | 0.22155 | 0.06017 | 0.003 | 0.0033 | 0.008 | 0.03675 | 0.04475 | 0.003006 | 0.002 | 0.01575 | 0.01775 | 304.699 | 0.019015 |
| 2018 | Heavy-Heavy Duty Trucks | HHDT | 0.01346 | 14.344 | 0.00156 | 0.037 | 0.012 | 0.036 | 0.06174 | 0.09774 | 0.011453 | 0.009 | 0.02646 | 0.03546 | 3860.97 | 7.2273E-05 |
| 2018 | Medium-Heavy Duty Trucks | MHDT | 0.3551 | 3.32316 | 0.10172 | 0.011 | 0.0525 | 0.012 | 0.13034 | 0.14234 | 0.05026556 | 0.003 | 0.05586 | 0.05886 | 1150.37 | 0.0047247 |
| 2018 | Light-Heavy Duty Trucks | LHD2 | 0.84828 | 0.24231 | 0.03001 | 0.008 | 0.0009 | 0.008 | 0.8918 | 0.8998 | 0.000847 | 0.002 | 0.03822 | 0.04022 | 755.629 | 0.011787 |
| 2018 | Light-Duty Trucks | LDT2 | 1.05247 | 0.109 | 0.02017 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001368 | 0.002 | 0.01575 | 0.01775 | 340.21 | 0.007483 |
| 2018 | Passenger Cars | LDA | 0.81445 | 0.0667 | 0.01557 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001395 | 0.002 | 0.01575 | 0.01775 | 254.152 | 0.005729 |
| 2018 | Light-Light Duty Trucks | LDT1 | 2.10353 | 0.19186 | 0.04523 | 0.003 | 0.003 | 0.008 | 0.03675 | 0.04475 | 0.002745 | 0.002 | 0.01575 | 0.01775 | 297.888 | 0.016643 |
| 2019 | Heavy-Heavy Duty Trucks | HHDT | 0.01343 | 14.233 | 0.00162 | 0.037 | 0.0118 | 0.036 | 0.06174 | 0.09774 | 0.011294 | 0.009 | 0.02646 | 0.03546 | 3858.24 | 7.5383E-05 |
| 2019 | Medium-Heavy Duty Trucks | MHDT | 0.31722 | 2.92708 | 0.0897 | 0.011 | 0.0443 | 0.012 | 0.13034 | 0.14234 | 0.0424034 | 0.003 | 0.05586 | 0.05886 | 1147.58 | 0.0041662 |
| 2019 | Light-Heavy Duty Trucks | LHD2 | 0.70752 | 0.21195 | 0.02494 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000812 | 0.002 | 0.03822 | 0.04022 | 750.264 | 0.009814 |
| 2019 | Light-Duty Trucks | LDT2 | 0.93612 | 0.09382 | 0.01674 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001365 | 0.002 | 0.01575 | 0.01775 | 330.706 | 0.006605 |
| 2019 | Passenger Cars | LDA | 0.73717 | 0.0593 | 0.01276 | 0.002 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001392 | 0.002 | 0.01575 | 0.01775 | 247.144 | 0.005114 |
| 2019 | Light-Light Duty Trucks | LDT1 | 1.89288 | 0.17124 | 0.03806 | 0.003 | 0.0028 | 0.008 | 0.03675 | 0.04475 | 0.002585 | 0.002 | 0.01575 | 0.01775 | 291.139 | 0.014912 |
| 2020 | Heavy-Heavy Duty Trucks | HHDT | 0.01341 | 14.1218 | 0.00169 | 0.037 | 0.0116 | 0.036 | 0.06174 | 0.09774 | 0.01113205 | 0.009 | 0.02646 | 0.03546 | 3855.49 | 7.85E-05 |
| 2020 | Medium-Heavy Duty Trucks | MHDT | 0.24455 | 2.36307 | 0.0676 | 0.011 | 0.0304 | 0.012 | 0.13034 | 0.14234 | 0.02908611 | 0.003 | 0.05586 | 0.05886 | 1145.26 | 0.00313992 |
| 2020 | Light-Heavy Duty Trucks | LHD2 | 0.58838 | 0.18558 | 0.02062 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00078462 | 0.002 | 0.03822 | 0.04022 | 745.191 | 0.0082257 |
| 2020 | Light-Duty Trucks | LDT2 | 0.84746 | 0.08223 | 0.01453 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00135657 | 0.002 | 0.01575 | 0.01775 | 321.254 | 0.00584818 |
| 2020 | Passenger Cars | LDA | 0.68262 | 0.05355 | 0.01144 | 0.002 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00137783 | 0.002 | 0.01575 | 0.01775 | 240.305 | 0.00459183 |
| 2020 | Light-Light Duty Trucks | LDT1 | 1.71724 | 0.15401 | 0.03314 | 0.003 | 0.0027 | 0.008 | 0.03675 | 0.04475 | 0.00244149 | 0.002 | 0.01575 | 0.01775 | 284.254 | 0.01325812 |
| 2021 | Heavy-Heavy Duty Trucks | HHDT | 0.01334 | 13.9855 | 0.00177 | 0.037 | 0.0114 | 0.036 | 0.06174 | 0.09774 | 0.01089 | 0.009 | 0.02646 | 0.03546 | 3851.67 | 8.2004E-05 |
| 2021 | Medium-Heavy Duty Trucks | MHDT | 0.17063 | 1.82876 | 0.04195 | 0.011 | 0.0098 | 0.012 | 0.13034 | 0.14234 | 0.00941721 | 0.003 | 0.05586 | 0.05886 | 1143.77 | 0.00194851 |
| 2021 | Light-Heavy Duty Trucks | LHD2 | 0.49046 | 0.16183 | 0.01696 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.000766 | 0.002 | 0.03822 | 0.04022 | 740.378 | 0.006854 |
| 2021 | Light-Duty Trucks | LDT2 | 0.78281 | 0.07332 | 0.01317 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00134 | 0.002 | 0.01575 | 0.01775 | 310.702 | 0.005305 |
| 2021 | Passenger Cars | LDA | 0.63969 | 0.04882 | 0.01036 | 0.002 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00135 | 0.002 | 0.01575 | 0.01775 | 233.344 | 0.004164 |
| 2021 | Light-Light Duty Trucks | LDT1 | 1.5685 | 0.13923 | 0.02978 | 0.003 | 0.0025 | 0.008 | 0.03675 | 0.04475 | 0.0023 | 0.002 | 0.01575 | 0.01775 | 276.371 | 0.011933 |
| 2022 | Heavy-Heavy Duty Trucks | HHDT | 0.01338 | 13.9094 | 0.00182 | 0.037 | 0.0113 | 0.036 | 0.06174 | 0.09774 | 0.01081472 | 0.009 | 0.02646 | 0.03546 | 3850.18 | 8.47E-05 |
| 2022 | Medium-Heavy Duty Trucks | MHDT | 0.16908 | 1.63283 | 0.04045 | 0.011 | 0.0088 | 0.012 | 0.13034 | 0.14234 | 0.00839874 | 0.003 | 0.05586 | 0.05886 | 1139.91 | 0.00187895 |
| 2022 | Light-Heavy Duty Trucks | LHD2 | 0.41304 | 0.14005 | 0.01393 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.00075583 | 0.002 | 0.03822 | 0.04022 | 735.817 | 0.0056273 |
| 2022 | Light-Duty Trucks | LDT2 | 0.73304 | 0.06616 | 0.01205 | 0.003 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00133234 | 0.002 | 0.01575 | 0.01775 | 300.104 | 0.00485774 |
| 2022 | Passenger Cars | LDA | 0.60357 | 0.04477 | 0.00943 | 0.002 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00133488 | 0.002 | 0.01575 | 0.01775 | 226.476 | 0.00379878 |
| 2022 | Light-Light Duty Trucks | LDT1 | 1.43244 | 0.12581 | 0.02668 | 0.003 | 0.0024 | 0.008 | 0.03675 | 0.04475 | 0.00217461 | 0.002 | 0.01575 | 0.01775 | 268.257 | 0.01071889 |
| 2023 | Heavy-Heavy Duty Trucks | HHDT | 0.01336 | 13.8058 | 0.00189 | 0.037 | 0.0111 | 0.036 | 0.06174 | 0.09774 | 0.01064554 | 0.009 | 0.02646 | 0.03546 | 3847.44 | 8.78E-05 |
| 2023 | Medium-Heavy Duty Trucks | MHDT | 0.15237 | 0.98303 | 0.03059 | 0.011 | 0.005 | 0.012 | 0.13034 | 0.14234 | 0.00482875 | 0.003 | 0.05586 | 0.05886 | 1133.05 | 0.00142064 |
| 2023 | Light-Heavy Duty Trucks | LHD2 | 0.35403 | 0.12219 | 0.01173 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.00075275 | 0.002 | 0.03822 | 0.04022 | 731.482 | 0.00474003 |
| 2023 | Light-Duty Trucks | LDT2 | 0.69 | 0.05994 | 0.01101 | 0.003 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00132973 | 0.002 | 0.01575 | 0.01775 | 289.439 | 0.0044452 |
| 2023 | Passenger Cars | LDA | 0.56956 | 0.04128 | 0.00861 | 0.002 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.0013261 | 0.002 | 0.01575 | 0.01775 | 219.736 | 0.00347241 |
| 2023 | Light-Light Duty Trucks | LDT1 | 1.29924 | 0.11327 | 0.0237 | 0.003 | 0.0022 | 0.008 | 0.03675 | 0.04475 | 0.00205858 | 0.002 | 0.01575 | 0.01775 | 259.856 | 0.00955547 |
| 2024 | Heavy-Heavy Duty Trucks | HHDT | 0.01335 | 13.7107 | 0.00195 | 0.037 | 0.011 | 0.036 | 0.06174 | 0.09774 | 0.01048309 | 0.009 | 0.02646 | 0.03546 | 3844.86 | 9.07E-05 |
| 2024 | Medium-Heavy Duty Trucks | MHDT | 0.15321 | 0.91444 | 0.03056 | 0.011 | 0.0048 | 0.012 | 0.13034 | 0.14234 | 0.00457932 | 0.003 | 0.05586 | 0.05886 | 1129.75 | 0.00141939 |
| 2024 | Light-Heavy Duty Trucks | LHD2 | 0.30904 | 0.10705 | 0.01006 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.00075553 | 0.002 | 0.03822 | 0.04022 | 727.445 | 0.00406443 |
| 2024 | Light-Duty Trucks | LDT2 | 0.65619 | 0.05461 | 0.0101 | 0.003 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00132986 | 0.002 | 0.01575 | 0.01775 | 278.897 | 0.00408067 |

## EMFAC2014 Onroad Vehicle Emission Factors

### EMFAC2014: Passenger Cars (LDA), Light-Duty Trucks (LDT2), Light-Heavy-Duty Trucks (LHD2),

Exhaust emission factors from EMFAC2014 for Los Angeles (SC). A speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions. Version: EMFAC2014 Version 1.0.7. Run date: 2015/9/22 13:48; Season: Annual; Area: Los Angeles (SC); EMFAC2011 Vehicle Categories; Fuel: Gasoline.

### EMFAC2014: Medium-Heavy-Duty Trucks (MHDT), Heavy-Heavy-Duty Trucks (HHDT)

Exhaust emission factors from EMFAC2014 for Los Angeles (SC); EMFAC2011 Vehicle Categories; Region: Los Angeles (SC); Season: Annual Average; Fuel: Diesel; Speed: 40mph (combined speeds for PM fugitive and SOx). MHDT is average of T6 instate construction heavy, T6 instate construction small, T6 instate heavy, T6 instate small, and T6 Public. HHDT is T7 SWCV (Solid Waste Collection Truck). EMFAC does not predict methane emissions from MHDT and HHDT.

Running Exhaust Emissions **(grams/mile)**

| Year | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$-Tire Wear | $PM_{10}$-Break Wear | PM10 Fugitive | $PM_{2.5}$ | $PM^{2.5}$-Tire Wear | $PM^{2.5}$-Break Wear (Fugitive) | PM2.5 Fugitive | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi |
| 2024 | Passenger Cars | LDA | 0.53629 | 0.03812 | 0.00785 | 0.002 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00132098 | 0.002 | 0.01575 | 0.01775 | 213.048 | 0.00317105 |
| 2024 | Light-Light Duty Trucks | LDT1 | 1.19429 | 0.10281 | 0.02134 | 0.003 | 0.0021 | 0.008 | 0.03675 | 0.04475 | 0.0019606 | 0.002 | 0.01575 | 0.01775 | 251.377 | 0.00861428 |
| 2025 | Heavy-Heavy Duty Trucks | HHDT | 0.01335 | 13.6295 | 0.00201 | 0.037 | 0.0108 | 0.036 | 0.06174 | 0.09774 | 0.010338 | 0.009 | 0.02646 | 0.03546 | 3842.59 | 9.3252E-05 |
| 2025 | Medium-Heavy Duty Trucks | MHDT | 0.1537 | 0.85029 | 0.03048 | 0.011 | 0.0045 | 0.012 | 0.13034 | 0.14234 | 0.00435098 | 0.003 | 0.05586 | 0.05886 | 1126.35 | 0.0014158 |
| 2025 | Light-Heavy Duty Trucks | LHD2 | 0.27597 | 0.09455 | 0.00885 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.000763 | 0.002 | 0.03822 | 0.04022 | 723.696 | 0.003576 |
| 2025 | Light-Duty Trucks | LDT2 | 0.62171 | 0.0502 | 0.00933 | 0.003 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.001333 | 0.002 | 0.01575 | 0.01775 | 268.554 | 0.003769 |
| 2025 | Passenger Cars | LDA | 0.50636 | 0.0356 | 0.00727 | 0.002 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.001322 | 0.002 | 0.01575 | 0.01775 | 206.357 | 0.002937 |
| 2025 | Light-Light Duty Trucks | LDT1 | 1.09781 | 0.0936 | 0.01927 | 0.002 | 0.002 | 0.008 | 0.03675 | 0.04475 | 0.001876 | 0.002 | 0.01575 | 0.01775 | 242.904 | 0.007788 |
| 2026 | Heavy-Heavy Duty Trucks | HHDT | 0.01333 | 13.5495 | 0.00206 | 0.037 | 0.0106 | 0.036 | 0.06174 | 0.09774 | 0.01017083 | 0.009 | 0.02646 | 0.03546 | 3840.08 | 9.57E-05 |
| 2026 | Medium-Heavy Duty Trucks | MHDT | 0.15381 | 0.78943 | 0.03034 | 0.011 | 0.0043 | 0.012 | 0.13034 | 0.14234 | 0.0041344 | 0.003 | 0.05586 | 0.05886 | 1123.01 | 0.00140934 |
| 2026 | Light-Heavy Duty Trucks | LHD2 | 0.24185 | 0.08297 | 0.00752 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.0007696 | 0.002 | 0.03822 | 0.04022 | 720.271 | 0.0030388 |
| 2026 | Light-Duty Trucks | LDT2 | 0.59317 | 0.04654 | 0.00867 | 0.003 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.0013117 | 0.002 | 0.01575 | 0.01775 | 259.554 | 0.00350286 |
| 2026 | Passenger Cars | LDA | 0.4816 | 0.03342 | 0.00677 | 0.002 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00129621 | 0.002 | 0.01575 | 0.01775 | 200.565 | 0.00273604 |
| 2026 | Light-Light Duty Trucks | LDT1 | 1.01353 | 0.08589 | 0.01748 | 0.002 | 0.002 | 0.008 | 0.03675 | 0.04475 | 0.00179403 | 0.002 | 0.01575 | 0.01775 | 235.43 | 0.00706418 |
| 2027 | Heavy-Heavy Duty Trucks | HHDT | 0.01334 | 13.4989 | 0.0021 | 0.037 | 0.0105 | 0.036 | 0.06174 | 0.09774 | 0.01005577 | 0.009 | 0.02646 | 0.03546 | 3838.37 | 9.75E-05 |
| 2027 | Medium-Heavy Duty Trucks | MHDT | 0.15347 | 0.73069 | 0.03013 | 0.011 | 0.0041 | 0.012 | 0.13034 | 0.14234 | 0.00393641 | 0.003 | 0.05586 | 0.05886 | 1119.55 | 0.00139965 |
| 2027 | Light-Heavy Duty Trucks | LHD2 | 0.21447 | 0.07317 | 0.00647 | 0.007 | 0.0008 | 0.008 | 0.08918 | 0.09718 | 0.00077837 | 0.002 | 0.03822 | 0.04022 | 717.166 | 0.00261362 |
| 2027 | Light-Duty Trucks | LDT2 | 0.56876 | 0.04336 | 0.00809 | 0.003 | 0.0014 | 0.008 | 0.03675 | 0.04475 | 0.00126041 | 0.002 | 0.01575 | 0.01775 | 251.594 | 0.00326954 |
| 2027 | Passenger Cars | LDA | 0.45957 | 0.03143 | 0.00631 | 0.002 | 0.0013 | 0.008 | 0.03675 | 0.04475 | 0.00123729 | 0.002 | 0.01575 | 0.01775 | 195.408 | 0.00255148 |
| 2027 | Light-Light Duty Trucks | LDT1 | 0.93521 | 0.07871 | 0.01582 | 0.002 | 0.0018 | 0.008 | 0.03675 | 0.04475 | 0.00169056 | 0.002 | 0.01575 | 0.01775 | 228.641 | 0.00639405 |
| 2028 | Heavy-Heavy Duty Trucks | HHDT | 0.01332 | 13.4535 | 0.00213 | 0.037 | 0.0104 | 0.036 | 0.06174 | 0.09774 | 0.009924 | 0.009 | 0.02646 | 0.03546 | 3836.49 | 9.8942E-05 |
| 2028 | Medium-Heavy Duty Trucks | MHDT | 0.15336 | 0.68358 | 0.02998 | 0.011 | 0.0039 | 0.012 | 0.13034 | 0.14234 | 0.00377146 | 0.003 | 0.05586 | 0.05886 | 1116.73 | 0.00139267 |
| 2028 | Light-Heavy Duty Trucks | LHD2 | 0.19476 | 0.06527 | 0.00568 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000789 | 0.002 | 0.03822 | 0.04022 | 714.404 | 0.002296 |
| 2028 | Light-Duty Trucks | LDT2 | 0.54718 | 0.04057 | 0.00758 | 0.002 | 0.0013 | 0.008 | 0.03675 | 0.04475 | 0.001183 | 0.002 | 0.01575 | 0.01775 | 244.543 | 0.003062 |
| 2028 | Passenger Cars | LDA | 0.43956 | 0.02963 | 0.0059 | 0.002 | 0.0013 | 0.008 | 0.03675 | 0.04475 | 0.001151 | 0.002 | 0.01575 | 0.01775 | 190.82 | 0.002382 |
| 2028 | Light-Light Duty Trucks | LDT1 | 0.86708 | 0.07212 | 0.01446 | 0.002 | 0.0017 | 0.008 | 0.03675 | 0.04475 | 0.001572 | 0.002 | 0.01575 | 0.01775 | 222.525 | 0.005843 |
| 2029 | Heavy-Heavy Duty Trucks | HHDT | 0.01322 | 13.3719 | 0.00217 | 0.037 | 0.0101 | 0.036 | 0.06174 | 0.09774 | 0.009658 | 0.009 | 0.02646 | 0.03546 | 3832.79 | 0.00010062 |
| 2029 | Medium-Heavy Duty Trucks | MHDT | 0.15315 | 0.64246 | 0.02983 | 0.011 | 0.0038 | 0.012 | 0.13034 | 0.14234 | 0.00362446 | 0.003 | 0.05586 | 0.05886 | 1114.19 | 0.00138557 |
| 2029 | Light-Heavy Duty Trucks | LHD2 | 0.17863 | 0.05863 | 0.00507 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000798 | 0.002 | 0.03822 | 0.04022 | 711.954 | 0.002047 |
| 2029 | Light-Duty Trucks | LDT2 | 0.52699 | 0.03804 | 0.0071 | 0.002 | 0.0012 | 0.008 | 0.03675 | 0.04475 | 0.001112 | 0.002 | 0.01575 | 0.01775 | 238.26 | 0.002867 |
| 2029 | Passenger Cars | LDA | 0.42042 | 0.02793 | 0.0055 | 0.002 | 0.0012 | 0.008 | 0.03675 | 0.04475 | 0.001079 | 0.002 | 0.01575 | 0.01775 | 186.727 | 0.002222 |
| 2029 | Light-Light Duty Trucks | LDT1 | 0.79392 | 0.06501 | 0.01298 | 0.002 | 0.0016 | 0.008 | 0.03675 | 0.04475 | 0.001455 | 0.002 | 0.01575 | 0.01775 | 216.92 | 0.005246 |
| 2030 | Heavy-Heavy Duty Trucks | HHDT | 0.01312 | 13.3166 | 0.00219 | 0.037 | 0.0099 | 0.036 | 0.06174 | 0.09774 | 0.00943682 | 0.009 | 0.02646 | 0.03546 | 3829.71 | 0.00010162 |
| 2030 | Medium-Heavy Duty Trucks | MHDT | 0.15277 | 0.60525 | 0.02966 | 0.011 | 0.0036 | 0.012 | 0.13034 | 0.14234 | 0.00348863 | 0.003 | 0.05586 | 0.05886 | 0.02966 | 0.00137747 |
| 2030 | Light-Heavy Duty Trucks | LHD2 | 0.16516 | 0.05297 | 0.00453 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00080661 | 0.002 | 0.03822 | 0.04022 | 709.787 | 0.00183015 |
| 2030 | Light-Duty Trucks | LDT2 | 0.50844 | 0.0358 | 0.00666 | 0.002 | 0.0011 | 0.008 | 0.03675 | 0.04475 | 0.00104725 | 0.002 | 0.01575 | 0.01775 | 232.667 | 0.00269222 |
| 2030 | Passenger Cars | LDA | 0.40307 | 0.0264 | 0.00514 | 0.002 | 0.0011 | 0.008 | 0.03675 | 0.04475 | 0.00101572 | 0.002 | 0.01575 | 0.01775 | 183.088 | 0.0020776 |
| 2030 | Light-Light Duty Trucks | LDT1 | 0.72406 | 0.05777 | 0.01157 | 0.002 | 0.0015 | 0.008 | 0.03675 | 0.04475 | 0.00134256 | 0.002 | 0.01575 | 0.01775 | 211.781 | 0.00467652 |
| 2031 | Heavy-Heavy Duty Trucks | HHDT | 0.01298 | 13.2564 | 0.0022 | 0.037 | 0.0096 | 0.036 | 0.06174 | 0.09774 | 0.00917842 | 0.009 | 0.02646 | 0.03546 | 3826.08 | 0.00010235 |
| 2031 | Medium-Heavy Duty Trucks | MHDT | 0.15233 | 0.5714 | 0.02948 | 0.011 | 0.0035 | 0.012 | 0.13034 | 0.14234 | 0.00336506 | 0.003 | 0.05586 | 0.05886 | 1109.62 | 0.00136924 |
| 2031 | Light-Heavy Duty Trucks | LHD2 | 0.15084 | 0.04784 | 0.00395 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00081346 | 0.002 | 0.03822 | 0.04022 | 707.875 | 0.00159807 |
| 2031 | Light-Duty Trucks | LDT2 | 0.4908 | 0.03377 | 0.00626 | 0.002 | 0.0011 | 0.008 | 0.03675 | 0.04475 | 0.00098687 | 0.002 | 0.01575 | 0.01775 | 227.715 | 0.00253065 |
| 2031 | Passenger Cars | LDA | 0.38702 | 0.02502 | 0.00482 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.00095768 | 0.002 | 0.01575 | 0.01775 | 179.874 | 0.00194615 |
| 2031 | Light-Light Duty Trucks | LDT1 | 0.64935 | 0.04981 | 0.01009 | 0.002 | 0.0013 | 0.008 | 0.03675 | 0.04475 | 0.00122669 | 0.002 | 0.01575 | 0.01775 | 207.012 | 0.00407736 |
| 2032 | Heavy-Heavy Duty Trucks | HHDT | 0.01279 | 13.1789 | 0.00222 | 0.036 | 0.0093 | 0.036 | 0.06174 | 0.09774 | 0.00885904 | 0.009 | 0.02646 | 0.03546 | 3821.48 | 0.00010303 |
| 2032 | Medium-Heavy Duty Trucks | MHDT | 0.15185 | 0.5409 | 0.02931 | 0.011 | 0.0034 | 0.012 | 0.13034 | 0.14234 | 0.00325792 | 0.003 | 0.05586 | 0.05886 | 1107.76 | 0.00136119 |

## EMFAC2014 Onroad Vehicle Emission Factors

### EMFAC2014: Passenger Cars (LDA), Light-Duty Trucks (LDT2), Light-Heavy-Duty Trucks (LHD2),

Exhaust emission factors from EMFAC2014 for Los Angeles (SC). A speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions. Version: EMFAC2014 Version 1.0.7. Run date: 2015/9/22 13:48; Season: Annual; Area: Los Angeles (SC); EMFAC2011 Vehicle Categories; Fuel: Gasoline.

### EMFAC2014: Medium-Heavy-Duty Trucks (MHDT), Heavy-Heavy-Duty Trucks (HHDT)

Exhaust emission factors from EMFAC2014 for Los Angeles (SC); EMFAC2011 Vehicle Categories; Region: Los Angeles (SC); Season: Annual Average; Fuel: Diesel; Speed: 40mph (combined speeds for PM fugitive and SOx). MHDT is average of T6 instate construction heavy, T6 instate construction small, T6 instate heavy, T6 instate small, and T6 Public. HHDT is T7 SWCV (Solid Waste Collection Truck). EMFAC does not predict methane emissions from MHDT and HHDT.

Running Exhaust Emissions **(grams/mile)**

| Year | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$-Tire Wear | $PM_{10}$-Break Wear | PM10 Fugitive | $PM_{2.5}$ | $PM^{2.5}$-Tire Wear | $PM^{2.5}$-Break Wear (Fugitive) | PM2.5 Fugitive | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi |
| 2032 | Light-Heavy Duty Trucks | LHD2 | 0.13842 | 0.04357 | 0.00344 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00081979 | 0.002 | 0.03822 | 0.04022 | 706.189 | 0.00138869 |
| 2032 | Light-Duty Trucks | LDT2 | 0.47411 | 0.03194 | 0.0059 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.00092955 | 0.002 | 0.01575 | 0.01775 | 223.353 | 0.00238276 |
| 2032 | Passenger Cars | LDA | 0.37198 | 0.02377 | 0.00452 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.00090306 | 0.002 | 0.01575 | 0.01775 | 177.044 | 0.0018251 |
| 2032 | Light-Light Duty Trucks | LDT1 | 0.58674 | 0.0431 | 0.00885 | 0.002 | 0.0012 | 0.008 | 0.03675 | 0.04475 | 0.00112507 | 0.002 | 0.01575 | 0.01775 | 202.727 | 0.00357611 |
| 2033 | Heavy-Heavy Duty Trucks | HHDT | 0.01257 | 13.0982 | 0.00223 | 0.036 | 0.0089 | 0.036 | 0.06174 | 0.09774 | 0.008536 | 0.009 | 0.02646 | 0.03546 | 3816.62 | 0.0001035 |
| 2033 | Medium-Heavy Duty Trucks | MHDT | 0.1514 | 0.51359 | 0.02915 | 0.011 | 0.0033 | 0.012 | 0.13034 | 0.14234 | 0.00316799 | 0.003 | 0.05586 | 0.05886 | 1105.97 | 0.00135395 |
| 2033 | Light-Heavy Duty Trucks | LHD2 | 0.13476 | 0.0407 | 0.00328 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000827 | 0.002 | 0.03822 | 0.04022 | 704.71 | 0.001324 |
| 2033 | Light-Duty Trucks | LDT2 | 0.45827 | 0.03025 | 0.00556 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.000875 | 0.002 | 0.01575 | 0.01775 | 219.534 | 0.002246 |
| 2033 | Passenger Cars | LDA | 0.35813 | 0.02264 | 0.00425 | 0.002 | 0.0009 | 0.008 | 0.03675 | 0.04475 | 0.000852 | 0.002 | 0.01575 | 0.01775 | 174.576 | 0.001716 |
| 2033 | Light-Light Duty Trucks | LDT1 | 0.53693 | 0.03769 | 0.00786 | 0.002 | 0.0011 | 0.008 | 0.03675 | 0.04475 | 0.001037 | 0.002 | 0.01575 | 0.01775 | 198.903 | 0.003175 |
| 2034 | Heavy-Heavy Duty Trucks | HHDT | 0.01226 | 12.9622 | 0.00225 | 0.036 | 0.0085 | 0.036 | 0.06174 | 0.09774 | 0.00808607 | 0.009 | 0.02646 | 0.03546 | 3809.6 | 0.00010459 |
| 2034 | Medium-Heavy Duty Trucks | MHDT | 0.15088 | 0.48923 | 0.02899 | 0.011 | 0.0032 | 0.012 | 0.13034 | 0.14234 | 0.0030881 | 0.003 | 0.05586 | 0.05886 | 1104.33 | 0.00134655 |
| 2034 | Light-Heavy Duty Trucks | LHD2 | 0.13098 | 0.03819 | 0.00312 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00083225 | 0.002 | 0.03822 | 0.04022 | 703.415 | 0.00125881 |
| 2034 | Light-Duty Trucks | LDT2 | 0.44324 | 0.02871 | 0.00524 | 0.002 | 0.0009 | 0.008 | 0.03675 | 0.04475 | 0.00082231 | 0.002 | 0.01575 | 0.01775 | 216.221 | 0.00211922 |
| 2034 | Passenger Cars | LDA | 0.34464 | 0.02164 | 0.00399 | 0.002 | 0.0009 | 0.008 | 0.03675 | 0.04475 | 0.00080249 | 0.002 | 0.01575 | 0.01775 | 172.433 | 0.00161333 |
| 2034 | Light-Light Duty Trucks | LDT1 | 0.4872 | 0.03338 | 0.00687 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.00094983 | 0.002 | 0.01575 | 0.01775 | 195.395 | 0.0027759 |
| 2035 | Heavy-Heavy Duty Trucks | HHDT | 0.01205 | 12.8738 | 0.00226 | 0.036 | 0.0082 | 0.036 | 0.06174 | 0.09774 | 0.00784005 | 0.009 | 0.02646 | 0.03546 | 3804.9 | 0.00010509 |
| 2035 | Medium-Heavy Duty Trucks | MHDT | 0.1503 | 0.46737 | 0.02883 | 0.011 | 0.0031 | 0.012 | 0.13034 | 0.14234 | 0.00301284 | 0.003 | 0.05586 | 0.05886 | 1102.91 | 0.00133887 |
| 2035 | Light-Heavy Duty Trucks | LHD2 | 0.1277 | 0.03603 | 0.00297 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00083665 | 0.002 | 0.03822 | 0.04022 | 702.3 | 0.00120162 |
| 2035 | Light-Duty Trucks | LDT2 | 0.42941 | 0.02732 | 0.00496 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.00077313 | 0.002 | 0.01575 | 0.01775 | 213.383 | 0.00200483 |
| 2035 | Passenger Cars | LDA | 0.33165 | 0.02078 | 0.00375 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.00075598 | 0.002 | 0.01575 | 0.01775 | 170.592 | 0.00151659 |
| 2035 | Light-Light Duty Trucks | LDT1 | 0.45132 | 0.03084 | 0.00616 | 0.002 | 0.001 | 0.008 | 0.03675 | 0.04475 | 0.0008808 | 0.002 | 0.01575 | 0.01775 | 192.368 | 0.00248923 |
| 2036 | Heavy-Heavy Duty Trucks | HHDT | 0.01195 | 12.804 | 0.00228 | 0.036 | 0.0082 | 0.036 | 0.06174 | 0.09774 | 0.0078152 | 0.009 | 0.02646 | 0.03546 | 3801.69 | 0.00010572 |
| 2036 | Medium-Heavy Duty Trucks | MHDT | 0.14974 | 0.44799 | 0.02868 | 0.011 | 0.0031 | 0.012 | 0.13034 | 0.14234 | 0.00295569 | 0.003 | 0.05586 | 0.05886 | 1102.89 | 0.00133198 |
| 2036 | Light-Heavy Duty Trucks | LHD2 | 0.12525 | 0.03414 | 0.00287 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00084127 | 0.002 | 0.03822 | 0.04022 | 701.361 | 0.00115849 |
| 2036 | Light-Duty Trucks | LDT2 | 0.416 | 0.02594 | 0.00468 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.0007285 | 0.002 | 0.01575 | 0.01775 | 210.957 | 0.00189286 |
| 2036 | Passenger Cars | LDA | 0.32005 | 0.02004 | 0.00354 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.00071577 | 0.002 | 0.01575 | 0.01775 | 169.033 | 0.00143208 |
| 2036 | Light-Light Duty Trucks | LDT1 | 0.42052 | 0.02862 | 0.00554 | 0.002 | 0.0009 | 0.008 | 0.03675 | 0.04475 | 0.00082898 | 0.002 | 0.01575 | 0.01775 | 189.69 | 0.00224049 |
| 2037 | Heavy-Heavy Duty Trucks | HHDT | 0.01188 | 12.7412 | 0.0023 | 0.036 | 0.0082 | 0.036 | 0.06174 | 0.09774 | 0.007837 | 0.009 | 0.02646 | 0.03546 | 3800.48 | 0.0001068 |
| 2037 | Medium-Heavy Duty Trucks | MHDT | 0.14916 | 0.43076 | 0.02853 | 0.011 | 0.003 | 0.012 | 0.13034 | 0.14234 | 0.00290715 | 0.003 | 0.05586 | 0.05886 | 1101.67 | 0.0013252 |
| 2037 | Light-Heavy Duty Trucks | LHD2 | 0.12376 | 0.03265 | 0.00279 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000845 | 0.002 | 0.03822 | 0.04022 | 700.585 | 0.001128 |
| 2037 | Light-Duty Trucks | LDT2 | 0.40463 | 0.02482 | 0.00446 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.000688 | 0.002 | 0.01575 | 0.01775 | 208.943 | 0.001801 |
| 2037 | Passenger Cars | LDA | 0.31019 | 0.01943 | 0.00337 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.000679 | 0.002 | 0.01575 | 0.01775 | 167.735 | 0.001363 |
| 2037 | Light-Light Duty Trucks | LDT1 | 0.39675 | 0.0269 | 0.00508 | 0.002 | 0.0009 | 0.008 | 0.03675 | 0.04475 | 0.000784 | 0.002 | 0.01575 | 0.01775 | 187.398 | 0.002051 |
| 2038 | Heavy-Heavy Duty Trucks | HHDT | 0.01186 | 12.658 | 0.00236 | 0.036 | 0.0083 | 0.036 | 0.06174 | 0.09774 | 0.007922 | 0.009 | 0.02646 | 0.03546 | 3800.85 | 0.00010939 |
| 2038 | Medium-Heavy Duty Trucks | MHDT | 0.14869 | 0.41673 | 0.02841 | 0.011 | 0.003 | 0.012 | 0.13034 | 0.14234 | 0.0028665 | 0.003 | 0.05586 | 0.05886 | 1100.67 | 0.00131968 |
| 2038 | Light-Heavy Duty Trucks | LHD2 | 0.12226 | 0.03129 | 0.00272 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000849 | 0.002 | 0.03822 | 0.04022 | 699.948 | 0.001099 |
| 2038 | Light-Duty Trucks | LDT2 | 0.39498 | 0.02383 | 0.00426 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.000653 | 0.002 | 0.01575 | 0.01775 | 207.286 | 0.001723 |
| 2038 | Passenger Cars | LDA | 0.30209 | 0.01894 | 0.00324 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.000647 | 0.002 | 0.01575 | 0.01775 | 166.666 | 0.001309 |
| 2038 | Light-Light Duty Trucks | LDT1 | 0.37931 | 0.02534 | 0.00469 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.000742 | 0.002 | 0.01575 | 0.01775 | 185.387 | 0.001896 |
| 2039 | Heavy-Heavy Duty Trucks | HHDT | 0.01199 | 12.5982 | 0.00244 | 0.036 | 0.0085 | 0.036 | 0.06174 | 0.09774 | 0.00816091 | 0.009 | 0.02646 | 0.03546 | 3808.02 | 0.00011348 |
| 2039 | Medium-Heavy Duty Trucks | MHDT | 0.14833 | 0.40561 | 0.02832 | 0.01 | 0.003 | 0.012 | 0.13034 | 0.14234 | 0.00283351 | 0.003 | 0.05586 | 0.05886 | 1099.88 | 0.00131538 |
| 2039 | Light-Heavy Duty Trucks | LHD2 | 0.12005 | 0.02993 | 0.00264 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085081 | 0.002 | 0.03822 | 0.04022 | 699.424 | 0.00106497 |
| 2039 | Light-Duty Trucks | LDT2 | 0.38734 | 0.02303 | 0.00412 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.00062109 | 0.002 | 0.01575 | 0.01775 | 205.943 | 0.00166316 |
| 2039 | Passenger Cars | LDA | 0.29581 | 0.01857 | 0.00314 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.00061766 | 0.002 | 0.01575 | 0.01775 | 165.791 | 0.00127061 |
| 2039 | Light-Light Duty Trucks | LDT1 | 0.36537 | 0.02412 | 0.00438 | 0.002 | 0.0008 | 0.008 | 0.03675 | 0.04475 | 0.00070246 | 0.002 | 0.01575 | 0.01775 | 183.576 | 0.00177097 |

## EMFAC2014 Onroad Vehicle Emission Factors

### EMFAC2014: Passenger Cars (LDA), Light-Duty Trucks (LDT2), Light-Heavy-Duty Trucks (LHD2),

Exhaust emission factors from EMFAC2014 for Los Angeles (SC). A speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions. Version: EMFAC2014 Version 1.0.7. Run date: 2015/9/22 13:48; Season: Annual; Area: Los Angeles (SC); EMFAC2011 Vehicle Categories; Fuel: Gasoline.

### EMFAC2014: Medium-Heavy-Duty Trucks (MHDT), Heavy-Heavy-Duty Trucks (HHDT)

Exhaust emission factors from EMFAC2014 for Los Angeles (SC); EMFAC2011 Vehicle Categories; Region: Los Angeles (SC); Season: Annual Average; Fuel: Diesel; Speed: 40mph (combined speeds for PM fugitive and SOx). MHDT is average of T6 instate construction heavy, T6 instate construction small, T6 instate heavy, T6 instate small, and T6 Public. HHDT is T7 SWCV (Solid Waste Collection Truck). EMFAC does not predict methane emissions from MHDT and HHDT.

Running Exhaust Emissions **(grams/mile)**

| Year | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$-Tire Wear | $PM_{10}$-Break Wear | PM10 Fugitive | $PM_{2.5}$ | $PM^{2.5}$-Tire Wear | $PM^{2.5}$-Break Wear (Fugitive) | PM2.5 Fugitive | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi | g/mi |
| 2040 | Heavy-Heavy Duty Trucks | HHDT | 0.01222 | 12.49 | 0.00258 | 0.036 | 0.0089 | 0.036 | 0.06174 | 0.09774 | 0.00849272 | 0.009 | 0.02646 | 0.03546 | 3816.58 | 0.00011971 |
| 2040 | Medium-Heavy Duty Trucks | MHDT | 0.14805 | 0.39638 | 0.02824 | 0.01 | 0.0029 | 0.012 | 0.13034 | 0.14234 | 0.00280555 | 0.003 | 0.05586 | 0.05886 | 1099.22 | 0.00131187 |
| 2040 | Light-Heavy Duty Trucks | LHD2 | 0.11889 | 0.02891 | 0.00258 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085286 | 0.002 | 0.03822 | 0.04022 | 699.01 | 0.00104422 |
| 2040 | Light-Duty Trucks | LDT2 | 0.38097 | 0.02242 | 0.00399 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00059347 | 0.002 | 0.01575 | 0.01775 | 204.858 | 0.00161284 |
| 2040 | Passenger Cars | LDA | 0.29066 | 0.01827 | 0.00307 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00059186 | 0.002 | 0.01575 | 0.01775 | 165.08 | 0.00124075 |
| 2040 | Light-Light Duty Trucks | LDT1 | 0.35425 | 0.02312 | 0.00414 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.00066765 | 0.002 | 0.01575 | 0.01775 | 181.99 | 0.00167488 |
| 2041 | Heavy-Heavy Duty Trucks | HHDT | 0.01251 | 12.3288 | 0.00275 | 0.036 | 0.0093 | 0.036 | 0.06174 | 0.09774 | 0.008883 | 0.009 | 0.02646 | 0.03546 | 3824.47 | 0.00012748 |
| 2041 | Medium-Heavy Duty Trucks | MHDT | 0.14782 | 0.38864 | 0.02818 | 0.01 | 0.0029 | 0.012 | 0.13034 | 0.14234 | 0.00278276 | 0.003 | 0.05586 | 0.05886 | 1098.66 | 0.00130902 |
| 2041 | Light-Heavy Duty Trucks | LHD2 | 0.11871 | 0.02828 | 0.00256 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.000855 | 0.002 | 0.03822 | 0.04022 | 698.684 | 0.001034 |
| 2041 | Light-Duty Trucks | LDT2 | 0.37586 | 0.02198 | 0.0039 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.000572 | 0.002 | 0.01575 | 0.01775 | 204.007 | 0.001576 |
| 2041 | Passenger Cars | LDA | 0.28654 | 0.01804 | 0.00302 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.000571 | 0.002 | 0.01575 | 0.01775 | 164.516 | 0.001218 |
| 2041 | Light-Light Duty Trucks | LDT1 | 0.34435 | 0.02234 | 0.00396 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.000644 | 0.002 | 0.01575 | 0.01775 | 180.61 | 0.001601 |
| 2042 | Heavy-Heavy Duty Trucks | HHDT | 0.01282 | 12.1066 | 0.00291 | 0.037 | 0.0097 | 0.036 | 0.06174 | 0.09774 | 0.0092391 | 0.009 | 0.02646 | 0.03546 | 3827.18 | 0.00013497 |
| 2042 | Medium-Heavy Duty Trucks | MHDT | 0.14764 | 0.38182 | 0.02813 | 0.01 | 0.0029 | 0.012 | 0.13034 | 0.14234 | 0.002763 | 0.003 | 0.05586 | 0.05886 | 1098.18 | 0.00130664 |
| 2042 | Light-Heavy Duty Trucks | LHD2 | 0.11858 | 0.02777 | 0.00254 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085606 | 0.002 | 0.03822 | 0.04022 | 698.427 | 0.00102524 |
| 2042 | Light-Duty Trucks | LDT2 | 0.37152 | 0.02161 | 0.00382 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00055391 | 0.002 | 0.01575 | 0.01775 | 203.33 | 0.00154516 |
| 2042 | Passenger Cars | LDA | 0.28309 | 0.01785 | 0.00297 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.0005542 | 0.002 | 0.01575 | 0.01775 | 164.065 | 0.00120004 |
| 2042 | Light-Light Duty Trucks | LDT1 | 0.33504 | 0.02165 | 0.00379 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.00062167 | 0.002 | 0.01575 | 0.01775 | 179.389 | 0.00153252 |
| 2043 | Heavy-Heavy Duty Trucks | HHDT | 0.01333 | 11.7491 | 0.00315 | 0.037 | 0.0102 | 0.036 | 0.06174 | 0.09774 | 0.00971437 | 0.009 | 0.02646 | 0.03546 | 3827.1 | 0.0001465 |
| 2043 | Medium-Heavy Duty Trucks | MHDT | 0.14752 | 0.37653 | 0.0281 | 0.01 | 0.0029 | 0.012 | 0.13034 | 0.14234 | 0.00274747 | 0.003 | 0.05586 | 0.05886 | 1097.78 | 0.00130503 |
| 2043 | Light-Heavy Duty Trucks | LHD2 | 0.1185 | 0.02739 | 0.00252 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.0008571 | 0.002 | 0.03822 | 0.04022 | 698.224 | 0.00101859 |
| 2043 | Light-Duty Trucks | LDT2 | 0.36806 | 0.02132 | 0.00377 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.0005392 | 0.002 | 0.01575 | 0.01775 | 202.796 | 0.00152169 |
| 2043 | Passenger Cars | LDA | 0.28029 | 0.01771 | 0.00293 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00053981 | 0.002 | 0.01575 | 0.01775 | 163.709 | 0.00118573 |
| 2043 | Light-Light Duty Trucks | LDT1 | 0.32637 | 0.02104 | 0.00365 | 0.002 | 0.0007 | 0.008 | 0.03675 | 0.04475 | 0.00060158 | 0.002 | 0.01575 | 0.01775 | 178.297 | 0.00147404 |
| 2044 | Heavy-Heavy Duty Trucks | HHDT | 0.01429 | 11.0498 | 0.0036 | 0.036 | 0.011 | 0.036 | 0.06174 | 0.09774 | 0.01047825 | 0.009 | 0.02646 | 0.03546 | 3822.54 | 0.00016705 |
| 2044 | Medium-Heavy Duty Trucks | MHDT | 0.14745 | 0.37203 | 0.02807 | 0.01 | 0.0029 | 0.012 | 0.13034 | 0.14234 | 0.00273426 | 0.003 | 0.05586 | 0.05886 | 1097.46 | 0.00130388 |
| 2044 | Light-Heavy Duty Trucks | LHD2 | 0.11842 | 0.02705 | 0.00251 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085791 | 0.002 | 0.03822 | 0.04022 | 698.056 | 0.0010129 |
| 2044 | Light-Duty Trucks | LDT2 | 0.36531 | 0.02109 | 0.00372 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00052741 | 0.002 | 0.01575 | 0.01775 | 202.374 | 0.00150427 |
| 2044 | Passenger Cars | LDA | 0.27802 | 0.0176 | 0.00291 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00052804 | 0.002 | 0.01575 | 0.01775 | 163.429 | 0.00117471 |
| 2044 | Light-Light Duty Trucks | LDT1 | 0.31949 | 0.02062 | 0.00355 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00058422 | 0.002 | 0.01575 | 0.01775 | 177.38 | 0.00143465 |
| 2045 | Heavy-Heavy Duty Trucks | HHDT | 0.01558 | 10.2441 | 0.00418 | 0.036 | 0.0118 | 0.036 | 0.06174 | 0.09774 | 0.01133 | 0.009 | 0.02646 | 0.03546 | 3817.2 | 0.00019393 |
| 2045 | Medium-Heavy Duty Trucks | MHDT | 0.14742 | 0.36843 | 0.02806 | 0.01 | 0.0028 | 0.012 | 0.13034 | 0.14234 | 0.00272335 | 0.003 | 0.05586 | 0.05886 | 1097.2 | 0.00130309 |
| 2045 | Light-Heavy Duty Trucks | LHD2 | 0.11836 | 0.0268 | 0.0025 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085857 | 0.002 | 0.03822 | 0.04022 | 697.922 | 0.00100847 |
| 2045 | Light-Duty Trucks | LDT2 | 0.363 | 0.02091 | 0.00369 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00051803 | 0.002 | 0.01575 | 0.01775 | 202.026 | 0.00149093 |
| 2045 | Passenger Cars | LDA | 0.2761 | 0.01751 | 0.00289 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00051851 | 0.002 | 0.01575 | 0.01775 | 163.2 | 0.00116596 |
| 2045 | Light-Light Duty Trucks | LDT1 | 0.31361 | 0.0203 | 0.00348 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00056907 | 0.002 | 0.01575 | 0.01775 | 176.552 | 0.00140651 |
| 2046 | Heavy-Heavy Duty Trucks | HHDT | 0.01744 | 9.29438 | 0.00498 | 0.036 | 0.0128 | 0.036 | 0.06174 | 0.09774 | 0.01228416 | 0.009 | 0.02646 | 0.03546 | 3810.74 | 0.0002312 |
| 2046 | Medium-Heavy Duty Trucks | MHDT | 0.1474 | 0.36547 | 0.02804 | 0.01 | 0.0028 | 0.012 | 0.13034 | 0.14234 | 0.00271411 | 0.003 | 0.05586 | 0.05886 | 1096.99 | 0.00130256 |
| 2046 | Light-Heavy Duty Trucks | LHD2 | 0.1183 | 0.02657 | 0.00249 | 0.007 | 0.0009 | 0.008 | 0.08918 | 0.09718 | 0.00085907 | 0.002 | 0.03822 | 0.04022 | 697.812 | 0.0010046 |
| 2046 | Light-Duty Trucks | LDT2 | 0.36128 | 0.02076 | 0.00366 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00051085 | 0.002 | 0.01575 | 0.01775 | 201.754 | 0.00148081 |
| 2046 | Passenger Cars | LDA | 0.27461 | 0.01744 | 0.00287 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00051101 | 0.002 | 0.01575 | 0.01775 | 163.019 | 0.00115903 |
| 2046 | Light-Light Duty Trucks | LDT1 | 0.3083 | 0.02001 | 0.00342 | 0.002 | 0.0006 | 0.008 | 0.03675 | 0.04475 | 0.00055572 | 0.002 | 0.01575 | 0.01775 | 175.817 | 0.00138096 |

**lbs/VMT**

1gram = 0.0022046 lbs

| Year | | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$ (Fugitive) | $PM_{2.5}$ | $PM^{2.5}$ (Fugitive) | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT |
| 2017 | 2017Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.963E-05 | 3.182E-02 | 3.296E-06 | 8.124E-05 | 2.660E-05 | 2.155E-04 | 2.544E-05 | 7.818E-05 | 8.516E+00 | 1.531E-07 |
| 2017 | 2017Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 9.305E-04 | 8.453E-03 | 2.687E-04 | 2.421E-05 | 1.473E-04 | 3.138E-04 | 1.410E-04 | 1.298E-04 | 2.538E+00 | 1.248E-05 |
| 2017 | 2017Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.230E-03 | 6.085E-04 | 7.895E-05 | 1.678E-05 | 2.132E-06 | 2.142E-04 | 1.962E-06 | 8.867E-05 | 1.677E+00 | 3.098E-05 |
| 2017 | 2017Light-Duty Trucks | Light-Duty Trucks | LDT2 | 2.637E-03 | 2.812E-04 | 5.450E-05 | 7.738E-06 | 3.318E-06 | 9.866E-05 | 3.053E-06 | 3.913E-05 | 7.710E-01 | 1.886E-05 |
| 2017 | 2017Passenger Cars | Passenger Cars | LDA | 2.011E-03 | 1.672E-04 | 4.266E-05 | 5.777E-06 | 3.369E-06 | 9.866E-05 | 3.102E-06 | 3.913E-05 | 5.756E-01 | 1.431E-05 |
| 2017 | 2017Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 5.337E-03 | 4.884E-04 | 1.326E-04 | 6.792E-06 | 7.189E-06 | 9.866E-05 | 6.627E-06 | 3.913E-05 | 6.717E-01 | 4.192E-05 |
| 2018 | 2018Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.967E-05 | 3.162E-02 | 3.430E-06 | 8.121E-05 | 2.639E-05 | 2.155E-04 | 2.525E-05 | 7.818E-05 | 8.512E+00 | 1.593E-07 |
| 2018 | 2018Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 7.828E-04 | 7.326E-03 | 2.243E-04 | 2.420E-05 | 1.158E-04 | 3.138E-04 | 1.108E-04 | 1.298E-04 | 2.536E+00 | 1.042E-05 |
| 2018 | 2018Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 1.870E-03 | 5.342E-04 | 6.615E-05 | 1.666E-05 | 2.028E-06 | 1.984E-03 | 1.867E-06 | 8.867E-05 | 1.666E+00 | 2.599E-05 |
| 2018 | 2018Light-Duty Trucks | Light-Duty Trucks | LDT2 | 2.320E-03 | 2.403E-04 | 4.446E-05 | 7.522E-06 | 3.278E-06 | 9.866E-05 | 3.016E-06 | 3.913E-05 | 7.500E-01 | 1.650E-05 |
| 2018 | 2018Passenger Cars | Passenger Cars | LDA | 1.796E-03 | 1.471E-04 | 3.433E-05 | 5.622E-06 | 3.342E-06 | 9.866E-05 | 3.075E-06 | 3.913E-05 | 5.603E-01 | 1.263E-05 |
| 2018 | 2018Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 4.637E-03 | 4.230E-04 | 9.971E-05 | 6.629E-06 | 6.576E-06 | 9.866E-05 | 6.052E-06 | 3.913E-05 | 6.567E-01 | 3.669E-05 |
| 2019 | 2019Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.961E-05 | 3.138E-02 | 3.578E-06 | 8.113E-05 | 2.601E-05 | 2.155E-04 | 2.490E-05 | 7.818E-05 | 8.506E+00 | 1.662E-07 |
| 2019 | 2019Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 6.994E-04 | 6.453E-03 | 1.977E-04 | 2.414E-05 | 9.771E-05 | 3.138E-04 | 9.348E-05 | 1.298E-04 | 2.530E+00 | 9.185E-06 |
| 2019 | 2019Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 1.560E-03 | 4.673E-04 | 5.497E-05 | 1.653E-05 | 1.947E-06 | 2.142E-04 | 1.790E-06 | 8.867E-05 | 1.654E+00 | 2.164E-05 |
| 2019 | 2019Light-Duty Trucks | Light-Duty Trucks | LDT2 | 2.064E-03 | 2.068E-04 | 3.691E-05 | 7.308E-06 | 3.272E-06 | 9.866E-05 | 3.009E-06 | 3.913E-05 | 7.291E-01 | 1.456E-05 |
| 2019 | 2019Passenger Cars | Passenger Cars | LDA | 1.625E-03 | 1.307E-04 | 2.814E-05 | 5.463E-06 | 3.338E-06 | 9.866E-05 | 3.069E-06 | 3.913E-05 | 5.449E-01 | 1.127E-05 |
| 2019 | 2019Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 4.173E-03 | 3.775E-04 | 8.391E-05 | 6.475E-06 | 6.195E-06 | 9.866E-05 | 5.699E-06 | 3.913E-05 | 6.418E-01 | 3.287E-05 |
| 2020 | 2020Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.956E-05 | 3.113E-02 | 3.727E-06 | 8.109E-05 | 2.565E-05 | 2.155E-04 | 2.454E-05 | 7.818E-05 | 8.500E+00 | 1.731E-07 |
| 2020 | 2020Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 5.391E-04 | 5.210E-03 | 1.490E-04 | 2.409E-05 | 6.702E-05 | 3.138E-04 | 6.412E-05 | 1.298E-04 | 2.525E+00 | 6.922E-06 |
| 2020 | 2020Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 1.297E-03 | 4.091E-04 | 4.545E-05 | 1.642E-05 | 1.881E-06 | 2.142E-04 | 1.730E-06 | 8.867E-05 | 1.643E+00 | 1.813E-05 |
| 2020 | 2020Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.868E-03 | 1.813E-04 | 3.204E-05 | 7.098E-06 | 3.252E-06 | 9.866E-05 | 2.991E-06 | 3.913E-05 | 7.082E-01 | 1.289E-05 |
| 2020 | 2020Passenger Cars | Passenger Cars | LDA | 1.505E-03 | 1.180E-04 | 2.522E-05 | 5.311E-06 | 3.303E-06 | 9.866E-05 | 3.038E-06 | 3.913E-05 | 5.298E-01 | 1.012E-05 |
| 2020 | 2020Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 3.786E-03 | 3.395E-04 | 7.305E-05 | 6.316E-06 | 5.852E-06 | 9.866E-05 | 5.383E-06 | 3.913E-05 | 6.267E-01 | 2.923E-05 |
| 2021 | 2021Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.941E-05 | 3.083E-02 | 3.893E-06 | 8.102E-05 | 2.513E-05 | 2.155E-04 | 2.401E-05 | 7.818E-05 | 8.491E+00 | 1.808E-07 |
| 2021 | 2021Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.762E-04 | 4.032E-03 | 9.248E-05 | 2.406E-05 | 2.170E-05 | 3.138E-04 | 2.076E-05 | 1.298E-04 | 2.522E+00 | 4.296E-06 |
| 2021 | 2021Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 1.081E-03 | 3.568E-04 | 3.739E-05 | 1.631E-05 | 1.836E-06 | 2.142E-04 | 1.689E-06 | 8.867E-05 | 1.632E+00 | 1.511E-05 |
| 2021 | 2021Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.726E-03 | 1.616E-04 | 2.904E-05 | 6.863E-06 | 3.214E-06 | 9.866E-05 | 2.954E-06 | 3.913E-05 | 6.850E-01 | 1.170E-05 |
| 2021 | 2021Passenger Cars | Passenger Cars | LDA | 1.410E-03 | 1.076E-04 | 2.283E-05 | 5.157E-06 | 3.239E-06 | 9.866E-05 | 2.976E-06 | 3.913E-05 | 5.144E-01 | 9.180E-06 |
| 2021 | 2021Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 3.458E-03 | 3.069E-04 | 6.564E-05 | 6.138E-06 | 5.514E-06 | 9.866E-05 | 5.071E-06 | 3.913E-05 | 6.093E-01 | 2.631E-05 |
| 2022 | 2022Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.950E-05 | 3.066E-02 | 4.023E-06 | 8.098E-05 | 2.492E-05 | 2.155E-04 | 2.384E-05 | 7.818E-05 | 8.488E+00 | 1.868E-07 |
| 2022 | 2022Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.727E-04 | 3.600E-03 | 8.918E-05 | 2.398E-05 | 1.935E-05 | 3.138E-04 | 1.852E-05 | 1.298E-04 | 2.513E+00 | 4.142E-06 |
| 2022 | 2022Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 9.106E-04 | 3.088E-04 | 3.070E-05 | 1.620E-05 | 1.812E-06 | 2.142E-04 | 1.666E-06 | 8.867E-05 | 1.622E+00 | 1.241E-05 |
| 2022 | 2022Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.616E-03 | 1.459E-04 | 2.656E-05 | 6.629E-06 | 3.194E-06 | 9.866E-05 | 2.937E-06 | 3.913E-05 | 6.616E-01 | 1.071E-05 |
| 2022 | 2022Passenger Cars | Passenger Cars | LDA | 1.331E-03 | 9.870E-05 | 2.080E-05 | 5.004E-06 | 3.201E-06 | 9.866E-05 | 2.943E-06 | 3.913E-05 | 4.993E-01 | 8.375E-06 |
| 2022 | 2022Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 3.158E-03 | 2.774E-04 | 5.883E-05 | 5.954E-06 | 5.213E-06 | 9.866E-05 | 4.794E-06 | 3.913E-05 | 5.914E-01 | 2.363E-05 |
| 2023 | 2023Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.946E-05 | 3.044E-02 | 4.167E-06 | 8.092E-05 | 2.453E-05 | 2.155E-04 | 2.347E-05 | 7.818E-05 | 8.482E+00 | 1.936E-07 |
| 2023 | 2023Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.359E-04 | 2.167E-03 | 6.743E-05 | 2.383E-05 | 1.113E-05 | 3.138E-04 | 1.065E-05 | 1.298E-04 | 2.498E+00 | 3.132E-06 |
| 2023 | 2023Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 7.805E-04 | 2.694E-04 | 2.586E-05 | 1.611E-05 | 1.805E-06 | 2.142E-04 | 1.660E-06 | 8.867E-05 | 1.613E+00 | 1.045E-05 |
| 2023 | 2023Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.521E-03 | 1.321E-04 | 2.427E-05 | 6.392E-06 | 3.188E-06 | 9.866E-05 | 2.932E-06 | 3.913E-05 | 6.381E-01 | 9.800E-06 |
| 2023 | 2023Passenger Cars | Passenger Cars | LDA | 1.256E-03 | 9.101E-05 | 1.899E-05 | 4.855E-06 | 3.180E-06 | 9.866E-05 | 2.924E-06 | 3.913E-05 | 4.844E-01 | 7.655E-06 |
| 2023 | 2023Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 2.864E-03 | 2.497E-04 | 5.224E-05 | 5.764E-06 | 4.935E-06 | 9.866E-05 | 4.538E-06 | 3.913E-05 | 5.729E-01 | 2.107E-05 |
| 2024 | 2024Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.943E-05 | 3.023E-02 | 4.304E-06 | 8.087E-05 | 2.416E-05 | 2.155E-04 | 2.311E-05 | 7.818E-05 | 8.476E+00 | 1.999E-07 |
| 2024 | 2024Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.378E-04 | 2.016E-03 | 6.737E-05 | 2.376E-05 | 1.055E-05 | 3.138E-04 | 1.010E-05 | 1.298E-04 | 2.491E+00 | 3.129E-06 |
| 2024 | 2024Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 6.813E-04 | 2.360E-04 | 2.217E-05 | 1.602E-05 | 1.812E-06 | 2.142E-04 | 1.666E-06 | 8.867E-05 | 1.604E+00 | 8.960E-06 |
| 2024 | 2024Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.447E-03 | 1.204E-04 | 2.227E-05 | 6.159E-06 | 3.189E-06 | 9.866E-05 | 2.932E-06 | 3.913E-05 | 6.149E-01 | 8.996E-06 |

**lbs/VMT**

1gram = 0.0022046 lbs

| Year | | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$ (Fugitive) | $PM_{2.5}$ | $PM^{2.5}$ (Fugitive) | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT |
| 2024 | 2024Passenger Cars | Passenger Cars | LDA | 1.182E-03 | 8.403E-05 | 1.730E-05 | 4.706E-06 | 3.167E-06 | 9.866E-05 | 2.912E-06 | 3.913E-05 | 4.697E-01 | 6.991E-06 |
| 2024 | 2024Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 2.633E-03 | 2.267E-04 | 4.704E-05 | 5.573E-06 | 4.701E-06 | 9.866E-05 | 4.322E-06 | 3.913E-05 | 5.542E-01 | 1.899E-05 |
| 2025 | 2025Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.943E-05 | 3.005E-02 | 4.427E-06 | 8.082E-05 | 2.383E-05 | 2.155E-04 | 2.279E-05 | 7.818E-05 | 8.471E+00 | 2.056E-07 |
| 2025 | 2025Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.389E-04 | 1.875E-03 | 6.720E-05 | 2.369E-05 | 1.003E-05 | 3.138E-04 | 9.592E-06 | 1.298E-04 | 2.483E+00 | 3.121E-06 |
| 2025 | 2025Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 6.084E-04 | 2.084E-04 | 1.951E-05 | 1.593E-05 | 1.828E-06 | 2.142E-04 | 1.682E-06 | 8.867E-05 | 1.595E+00 | 7.884E-06 |
| 2025 | 2025Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.371E-03 | 1.107E-04 | 2.056E-05 | 5.930E-06 | 3.197E-06 | 9.866E-05 | 2.939E-06 | 3.913E-05 | 5.921E-01 | 8.309E-06 |
| 2025 | 2025Passenger Cars | Passenger Cars | LDA | 1.116E-03 | 7.847E-05 | 1.602E-05 | 4.557E-06 | 3.170E-06 | 9.866E-05 | 2.914E-06 | 3.913E-05 | 4.549E-01 | 6.475E-06 |
| 2025 | 2025Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 2.420E-03 | 2.064E-04 | 4.249E-05 | 5.384E-06 | 4.500E-06 | 9.866E-05 | 4.136E-06 | 3.913E-05 | 5.355E-01 | 1.717E-05 |
| 2026 | 2026Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.939E-05 | 2.987E-02 | 4.541E-06 | 8.077E-05 | 2.344E-05 | 2.155E-04 | 2.242E-05 | 7.818E-05 | 8.466E+00 | 2.109E-07 |
| 2026 | 2026Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.391E-04 | 1.740E-03 | 6.689E-05 | 2.362E-05 | 9.527E-06 | 3.138E-04 | 9.115E-06 | 1.298E-04 | 2.476E+00 | 3.107E-06 |
| 2026 | 2026Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 5.332E-04 | 1.829E-04 | 1.658E-05 | 1.585E-05 | 1.845E-06 | 2.142E-04 | 1.697E-06 | 8.867E-05 | 1.588E+00 | 6.699E-06 |
| 2026 | 2026Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.308E-03 | 1.026E-04 | 1.911E-05 | 5.731E-06 | 3.145E-06 | 9.866E-05 | 2.892E-06 | 3.913E-05 | 5.722E-01 | 7.722E-06 |
| 2026 | 2026Passenger Cars | Passenger Cars | LDA | 1.062E-03 | 7.368E-05 | 1.493E-05 | 4.430E-06 | 3.108E-06 | 9.866E-05 | 2.858E-06 | 3.913E-05 | 4.422E-01 | 6.032E-06 |
| 2026 | 2026Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 2.234E-03 | 1.893E-04 | 3.854E-05 | 5.216E-06 | 4.302E-06 | 9.866E-05 | 3.955E-06 | 3.913E-05 | 5.190E-01 | 1.557E-05 |
| 2027 | 2027Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.940E-05 | 2.976E-02 | 4.626E-06 | 8.073E-05 | 2.317E-05 | 2.155E-04 | 2.217E-05 | 7.818E-05 | 8.462E+00 | 2.149E-07 |
| 2027 | 2027Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.383E-04 | 1.611E-03 | 6.643E-05 | 2.355E-05 | 9.071E-06 | 3.138E-04 | 8.678E-06 | 1.298E-04 | 2.468E+00 | 3.086E-06 |
| 2027 | 2027Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 4.728E-04 | 1.613E-04 | 1.426E-05 | 1.579E-05 | 1.866E-06 | 2.142E-04 | 1.716E-06 | 8.867E-05 | 1.581E+00 | 5.762E-06 |
| 2027 | 2027Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.254E-03 | 9.560E-05 | 1.784E-05 | 5.555E-06 | 3.022E-06 | 9.866E-05 | 2.779E-06 | 3.913E-05 | 5.547E-01 | 7.208E-06 |
| 2027 | 2027Passenger Cars | Passenger Cars | LDA | 1.013E-03 | 6.930E-05 | 1.392E-05 | 4.315E-06 | 2.967E-06 | 9.866E-05 | 2.728E-06 | 3.913E-05 | 4.308E-01 | 5.625E-06 |
| 2027 | 2027Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 2.062E-03 | 1.735E-04 | 3.488E-05 | 5.064E-06 | 4.053E-06 | 9.866E-05 | 3.727E-06 | 3.913E-05 | 5.041E-01 | 1.410E-05 |
| 2028 | 2028Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.937E-05 | 2.966E-02 | 4.696E-06 | 8.069E-05 | 2.286E-05 | 2.155E-04 | 2.188E-05 | 7.818E-05 | 8.458E+00 | 2.181E-07 |
| 2028 | 2028Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.381E-04 | 1.507E-03 | 6.610E-05 | 2.349E-05 | 8.691E-06 | 3.138E-04 | 8.315E-06 | 1.298E-04 | 2.462E+00 | 3.070E-06 |
| 2028 | 2028Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 4.294E-04 | 1.439E-04 | 1.253E-05 | 1.572E-05 | 1.892E-06 | 2.142E-04 | 1.739E-06 | 8.867E-05 | 1.575E+00 | 5.062E-06 |
| 2028 | 2028Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.206E-03 | 8.944E-05 | 1.671E-05 | 5.399E-06 | 2.835E-06 | 9.866E-05 | 2.608E-06 | 3.913E-05 | 5.391E-01 | 6.750E-06 |
| 2028 | 2028Passenger Cars | Passenger Cars | LDA | 9.690E-04 | 6.532E-05 | 1.300E-05 | 4.213E-06 | 2.760E-06 | 9.866E-05 | 2.537E-06 | 3.913E-05 | 4.207E-01 | 5.251E-06 |
| 2028 | 2028Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.912E-03 | 1.590E-04 | 3.188E-05 | 4.927E-06 | 3.768E-06 | 9.866E-05 | 3.466E-06 | 3.913E-05 | 4.906E-01 | 1.288E-05 |
| 2029 | 2029Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.913E-05 | 2.948E-02 | 4.775E-06 | 8.062E-05 | 2.226E-05 | 2.155E-04 | 2.129E-05 | 7.818E-05 | 8.450E+00 | 2.218E-07 |
| 2029 | 2029Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.376E-04 | 1.416E-03 | 6.577E-05 | 2.343E-05 | 8.352E-06 | 3.138E-04 | 7.990E-06 | 1.298E-04 | 2.456E+00 | 3.055E-06 |
| 2029 | 2029Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 3.938E-04 | 1.293E-04 | 1.117E-05 | 1.567E-05 | 1.914E-06 | 2.142E-04 | 1.759E-06 | 8.867E-05 | 1.570E+00 | 4.513E-06 |
| 2029 | 2029Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.162E-03 | 8.387E-05 | 1.564E-05 | 5.260E-06 | 2.665E-06 | 9.866E-05 | 2.452E-06 | 3.913E-05 | 5.253E-01 | 6.321E-06 |
| 2029 | 2029Passenger Cars | Passenger Cars | LDA | 9.269E-04 | 6.157E-05 | 1.213E-05 | 4.123E-06 | 2.586E-06 | 9.866E-05 | 2.379E-06 | 3.913E-05 | 4.117E-01 | 4.899E-06 |
| 2029 | 2029Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.750E-03 | 1.433E-04 | 2.862E-05 | 4.802E-06 | 3.490E-06 | 9.866E-05 | 3.208E-06 | 3.913E-05 | 4.782E-01 | 1.157E-05 |
| 2030 | 2030Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.892E-05 | 2.936E-02 | 4.823E-06 | 8.055E-05 | 2.175E-05 | 2.155E-04 | 2.080E-05 | 7.818E-05 | 8.443E+00 | 2.240E-07 |
| 2030 | 2030Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.368E-04 | 1.334E-03 | 6.538E-05 | 2.338E-05 | 8.039E-06 | 3.138E-04 | 7.691E-06 | 1.298E-04 | 6.538E-05 | 3.037E-06 |
| 2030 | 2030Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 3.641E-04 | 1.168E-04 | 9.985E-06 | 1.562E-05 | 1.934E-06 | 2.142E-04 | 1.778E-06 | 8.867E-05 | 1.565E+00 | 4.035E-06 |
| 2030 | 2030Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.121E-03 | 7.893E-05 | 1.469E-05 | 5.137E-06 | 2.511E-06 | 9.866E-05 | 2.309E-06 | 3.913E-05 | 5.129E-01 | 5.935E-06 |
| 2030 | 2030Passenger Cars | Passenger Cars | LDA | 8.886E-04 | 5.820E-05 | 1.134E-05 | 4.042E-06 | 2.435E-06 | 9.866E-05 | 2.239E-06 | 3.913E-05 | 4.036E-01 | 4.580E-06 |
| 2030 | 2030Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.596E-03 | 1.274E-04 | 2.551E-05 | 4.685E-06 | 3.219E-06 | 9.866E-05 | 2.960E-06 | 3.913E-05 | 4.669E-01 | 1.031E-05 |
| 2031 | 2031Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.862E-05 | 2.923E-02 | 4.858E-06 | 8.047E-05 | 2.115E-05 | 2.155E-04 | 2.023E-05 | 7.818E-05 | 8.435E+00 | 2.256E-07 |
| 2031 | 2031Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.358E-04 | 1.260E-03 | 6.499E-05 | 2.334E-05 | 7.754E-06 | 3.138E-04 | 7.419E-06 | 1.298E-04 | 2.446E+00 | 3.019E-06 |
| 2031 | 2031Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 3.325E-04 | 1.055E-04 | 8.719E-06 | 1.558E-05 | 1.950E-06 | 2.142E-04 | 1.793E-06 | 8.867E-05 | 1.561E+00 | 3.523E-06 |
| 2031 | 2031Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.082E-03 | 7.444E-05 | 1.381E-05 | 5.027E-06 | 2.366E-06 | 9.866E-05 | 2.176E-06 | 3.913E-05 | 5.020E-01 | 5.579E-06 |
| 2031 | 2031Passenger Cars | Passenger Cars | LDA | 8.532E-04 | 5.516E-05 | 1.062E-05 | 3.971E-06 | 2.296E-06 | 9.866E-05 | 2.111E-06 | 3.913E-05 | 3.965E-01 | 4.290E-06 |
| 2031 | 2031Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.432E-03 | 1.098E-04 | 2.225E-05 | 4.578E-06 | 2.941E-06 | 9.866E-05 | 2.704E-06 | 3.913E-05 | 4.564E-01 | 8.989E-06 |
| 2032 | 2032Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.820E-05 | 2.905E-02 | 4.890E-06 | 8.038E-05 | 2.041E-05 | 2.155E-04 | 1.953E-05 | 7.818E-05 | 8.425E+00 | 2.271E-07 |
| 2032 | 2032Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.348E-04 | 1.192E-03 | 6.461E-05 | 2.330E-05 | 7.507E-06 | 3.138E-04 | 7.182E-06 | 1.298E-04 | 2.442E+00 | 3.001E-06 |

**lbs/VMT**

1gram = 0.0022046 lbs

| Year | | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$ (Fugitive) | $PM_{2.5}$ | $PM^{2.5}$ (Fugitive) | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT |
| 2032 | 2032Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 3.052E-04 | 9.605E-05 | 7.576E-06 | 1.554E-05 | 1.966E-06 | 2.142E-04 | 1.807E-06 | 8.867E-05 | 1.557E+00 | 3.061E-06 |
| 2032 | 2032Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.045E-03 | 7.041E-05 | 1.300E-05 | 4.931E-06 | 2.229E-06 | 9.866E-05 | 2.049E-06 | 3.913E-05 | 4.924E-01 | 5.253E-06 |
| 2032 | 2032Passenger Cars | Passenger Cars | LDA | 8.201E-04 | 5.239E-05 | 9.957E-06 | 3.908E-06 | 2.165E-06 | 9.866E-05 | 1.991E-06 | 3.913E-05 | 3.903E-01 | 4.024E-06 |
| 2032 | 2032Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.294E-03 | 9.502E-05 | 1.951E-05 | 4.481E-06 | 2.698E-06 | 9.866E-05 | 2.480E-06 | 3.913E-05 | 4.469E-01 | 7.884E-06 |
| 2033 | 2033Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.772E-05 | 2.888E-02 | 4.912E-06 | 8.027E-05 | 1.967E-05 | 2.155E-04 | 1.882E-05 | 7.818E-05 | 8.414E+00 | 2.282E-07 |
| 2033 | 2033Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.338E-04 | 1.132E-03 | 6.426E-05 | 2.326E-05 | 7.300E-06 | 3.138E-04 | 6.984E-06 | 1.298E-04 | 2.438E+00 | 2.985E-06 |
| 2033 | 2033Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.971E-04 | 8.973E-05 | 7.220E-06 | 1.551E-05 | 1.982E-06 | 2.142E-04 | 1.823E-06 | 8.867E-05 | 1.554E+00 | 2.919E-06 |
| 2033 | 2033Light-Duty Trucks | Light-Duty Trucks | LDT2 | 1.010E-03 | 6.669E-05 | 1.225E-05 | 4.846E-06 | 2.097E-06 | 9.866E-05 | 1.929E-06 | 3.913E-05 | 4.840E-01 | 4.952E-06 |
| 2033 | 2033Passenger Cars | Passenger Cars | LDA | 7.895E-04 | 4.991E-05 | 9.363E-06 | 3.854E-06 | 2.041E-06 | 9.866E-05 | 1.878E-06 | 3.913E-05 | 3.849E-01 | 3.783E-06 |
| 2033 | 2033Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.184E-03 | 8.308E-05 | 1.732E-05 | 4.396E-06 | 2.487E-06 | 9.866E-05 | 2.286E-06 | 3.913E-05 | 4.385E-01 | 7.000E-06 |
| 2034 | 2034Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.702E-05 | 2.858E-02 | 4.964E-06 | 8.013E-05 | 1.863E-05 | 2.155E-04 | 1.783E-05 | 7.818E-05 | 8.399E+00 | 2.306E-07 |
| 2034 | 2034Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.326E-04 | 1.079E-03 | 6.391E-05 | 2.323E-05 | 7.116E-06 | 3.138E-04 | 6.808E-06 | 1.298E-04 | 2.435E+00 | 2.969E-06 |
| 2034 | 2034Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.888E-04 | 8.420E-05 | 6.868E-06 | 1.548E-05 | 1.995E-06 | 2.142E-04 | 1.835E-06 | 8.867E-05 | 1.551E+00 | 2.775E-06 |
| 2034 | 2034Light-Duty Trucks | Light-Duty Trucks | LDT2 | 9.772E-04 | 6.329E-05 | 1.156E-05 | 4.773E-06 | 1.972E-06 | 9.866E-05 | 1.813E-06 | 3.913E-05 | 4.767E-01 | 4.672E-06 |
| 2034 | 2034Passenger Cars | Passenger Cars | LDA | 7.598E-04 | 4.772E-05 | 8.802E-06 | 3.806E-06 | 1.924E-06 | 9.866E-05 | 1.769E-06 | 3.913E-05 | 3.801E-01 | 3.557E-06 |
| 2034 | 2034Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 1.074E-03 | 7.358E-05 | 1.514E-05 | 4.316E-06 | 2.277E-06 | 9.866E-05 | 2.094E-06 | 3.913E-05 | 4.308E-01 | 6.120E-06 |
| 2035 | 2035Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.656E-05 | 2.838E-02 | 4.988E-06 | 8.003E-05 | 1.807E-05 | 2.155E-04 | 1.728E-05 | 7.818E-05 | 8.388E+00 | 2.317E-07 |
| 2035 | 2035Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.314E-04 | 1.030E-03 | 6.355E-05 | 2.320E-05 | 6.942E-06 | 3.138E-04 | 6.642E-06 | 1.298E-04 | 2.431E+00 | 2.952E-06 |
| 2035 | 2035Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.815E-04 | 7.942E-05 | 6.556E-06 | 1.545E-05 | 2.006E-06 | 2.142E-04 | 1.844E-06 | 8.867E-05 | 1.548E+00 | 2.649E-06 |
| 2035 | 2035Light-Duty Trucks | Light-Duty Trucks | LDT2 | 9.467E-04 | 6.023E-05 | 1.094E-05 | 4.710E-06 | 1.854E-06 | 9.866E-05 | 1.704E-06 | 3.913E-05 | 4.704E-01 | 4.420E-06 |
| 2035 | 2035Passenger Cars | Passenger Cars | LDA | 7.312E-04 | 4.581E-05 | 8.274E-06 | 3.765E-06 | 1.813E-06 | 9.866E-05 | 1.667E-06 | 3.913E-05 | 3.761E-01 | 3.343E-06 |
| 2035 | 2035Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 9.950E-04 | 6.800E-05 | 1.358E-05 | 4.248E-06 | 2.112E-06 | 9.866E-05 | 1.942E-06 | 3.913E-05 | 4.241E-01 | 5.488E-06 |
| 2036 | 2036Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.634E-05 | 2.823E-02 | 5.018E-06 | 7.996E-05 | 1.801E-05 | 2.155E-04 | 1.723E-05 | 7.818E-05 | 8.381E+00 | 2.331E-07 |
| 2036 | 2036Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.301E-04 | 9.876E-04 | 6.322E-05 | 2.320E-05 | 6.811E-06 | 3.138E-04 | 6.516E-06 | 1.298E-04 | 2.431E+00 | 2.936E-06 |
| 2036 | 2036Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.761E-04 | 7.526E-05 | 6.321E-06 | 1.543E-05 | 2.017E-06 | 2.142E-04 | 1.855E-06 | 8.867E-05 | 1.546E+00 | 2.554E-06 |
| 2036 | 2036Light-Duty Trucks | Light-Duty Trucks | LDT2 | 9.171E-04 | 5.719E-05 | 1.033E-05 | 4.656E-06 | 1.747E-06 | 9.866E-05 | 1.606E-06 | 3.913E-05 | 4.651E-01 | 4.173E-06 |
| 2036 | 2036Passenger Cars | Passenger Cars | LDA | 7.056E-04 | 4.417E-05 | 7.813E-06 | 3.730E-06 | 1.716E-06 | 9.866E-05 | 1.578E-06 | 3.913E-05 | 3.726E-01 | 3.157E-06 |
| 2036 | 2036Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 9.271E-04 | 6.310E-05 | 1.222E-05 | 4.188E-06 | 1.988E-06 | 9.866E-05 | 1.828E-06 | 3.913E-05 | 4.182E-01 | 4.939E-06 |
| 2037 | 2037Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.619E-05 | 2.809E-02 | 5.068E-06 | 7.993E-05 | 1.806E-05 | 2.155E-04 | 1.728E-05 | 7.818E-05 | 8.379E+00 | 2.354E-07 |
| 2037 | 2037Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.288E-04 | 9.497E-04 | 6.290E-05 | 2.317E-05 | 6.699E-06 | 3.138E-04 | 6.409E-06 | 1.298E-04 | 2.429E+00 | 2.922E-06 |
| 2037 | 2037Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.728E-04 | 7.198E-05 | 6.153E-06 | 1.542E-05 | 2.026E-06 | 2.142E-04 | 1.863E-06 | 8.867E-05 | 1.545E+00 | 2.487E-06 |
| 2037 | 2037Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.920E-04 | 5.471E-05 | 9.824E-06 | 4.612E-06 | 1.651E-06 | 9.866E-05 | 1.517E-06 | 3.913E-05 | 4.606E-01 | 3.970E-06 |
| 2037 | 2037Passenger Cars | Passenger Cars | LDA | 6.839E-04 | 4.284E-05 | 7.436E-06 | 3.702E-06 | 1.629E-06 | 9.866E-05 | 1.497E-06 | 3.913E-05 | 3.698E-01 | 3.005E-06 |
| 2037 | 2037Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 8.747E-04 | 5.931E-05 | 1.119E-05 | 4.136E-06 | 1.881E-06 | 9.866E-05 | 1.728E-06 | 3.913E-05 | 4.131E-01 | 4.522E-06 |
| 2038 | 2038Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.614E-05 | 2.791E-02 | 5.192E-06 | 7.994E-05 | 1.826E-05 | 2.155E-04 | 1.746E-05 | 7.818E-05 | 8.379E+00 | 2.412E-07 |
| 2038 | 2038Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.278E-04 | 9.187E-04 | 6.264E-05 | 2.315E-05 | 6.605E-06 | 3.138E-04 | 6.319E-06 | 1.298E-04 | 2.427E+00 | 2.909E-06 |
| 2038 | 2038Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.695E-04 | 6.898E-05 | 5.994E-06 | 1.540E-05 | 2.035E-06 | 2.142E-04 | 1.872E-06 | 8.867E-05 | 1.543E+00 | 2.423E-06 |
| 2038 | 2038Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.708E-04 | 5.253E-05 | 9.400E-06 | 4.575E-06 | 1.565E-06 | 9.866E-05 | 1.440E-06 | 3.913E-05 | 4.570E-01 | 3.799E-06 |
| 2038 | 2038Passenger Cars | Passenger Cars | LDA | 6.660E-04 | 4.176E-05 | 7.141E-06 | 3.677E-06 | 1.550E-06 | 9.866E-05 | 1.426E-06 | 3.913E-05 | 3.674E-01 | 2.886E-06 |
| 2038 | 2038Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 8.362E-04 | 5.587E-05 | 1.034E-05 | 4.092E-06 | 1.779E-06 | 9.866E-05 | 1.636E-06 | 3.913E-05 | 4.087E-01 | 4.180E-06 |
| 2039 | 2039Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.644E-05 | 2.777E-02 | 5.386E-06 | 8.009E-05 | 1.881E-05 | 2.155E-04 | 1.799E-05 | 7.818E-05 | 8.395E+00 | 2.502E-07 |
| 2039 | 2039Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.270E-04 | 8.942E-04 | 6.243E-05 | 2.313E-05 | 6.529E-06 | 3.138E-04 | 6.247E-06 | 1.298E-04 | 2.425E+00 | 2.900E-06 |
| 2039 | 2039Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.647E-04 | 6.599E-05 | 5.810E-06 | 1.539E-05 | 2.040E-06 | 2.142E-04 | 1.876E-06 | 8.867E-05 | 1.542E+00 | 2.348E-06 |
| 2039 | 2039Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.539E-04 | 5.077E-05 | 9.074E-06 | 4.544E-06 | 1.489E-06 | 9.866E-05 | 1.369E-06 | 3.913E-05 | 4.540E-01 | 3.667E-06 |
| 2039 | 2039Passenger Cars | Passenger Cars | LDA | 6.521E-04 | 4.094E-05 | 6.932E-06 | 3.658E-06 | 1.481E-06 | 9.866E-05 | 1.362E-06 | 3.913E-05 | 3.655E-01 | 2.801E-06 |
| 2039 | 2039Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 8.055E-04 | 5.317E-05 | 9.662E-06 | 4.052E-06 | 1.684E-06 | 9.866E-05 | 1.549E-06 | 3.913E-05 | 4.047E-01 | 3.904E-06 |

lbs/VMT

1gram = 0.0022046 lbs

| Year | | Vehicle Category | | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{10}$ (Fugitive) | $PM_{2.5}$ | $PM^{2.5}$ (Fugitive) | CO2 | CH4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT | lb/VMT |
| 2040 | 2040Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.693E-05 | 2.754E-02 | 5.682E-06 | 8.027E-05 | 1.957E-05 | 2.155E-04 | 1.872E-05 | 7.818E-05 | 8.414E+00 | 2.639E-07 |
| 2040 | 2040Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.264E-04 | 8.739E-04 | 6.227E-05 | 2.312E-05 | 6.465E-06 | 3.138E-04 | 6.185E-06 | 1.298E-04 | 2.423E+00 | 2.892E-06 |
| 2040 | 2040Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.621E-04 | 6.373E-05 | 5.697E-06 | 1.538E-05 | 2.045E-06 | 2.142E-04 | 1.880E-06 | 8.867E-05 | 1.541E+00 | 2.302E-06 |
| 2040 | 2040Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.399E-04 | 4.943E-05 | 8.799E-06 | 4.520E-06 | 1.423E-06 | 9.866E-05 | 1.308E-06 | 3.913E-05 | 4.516E-01 | 3.556E-06 |
| 2040 | 2040Passenger Cars | Passenger Cars | LDA | 6.408E-04 | 4.027E-05 | 6.769E-06 | 3.642E-06 | 1.419E-06 | 9.866E-05 | 1.305E-06 | 3.913E-05 | 3.639E-01 | 2.735E-06 |
| 2040 | 2040Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 7.810E-04 | 5.097E-05 | 9.138E-06 | 4.016E-06 | 1.601E-06 | 9.866E-05 | 1.472E-06 | 3.913E-05 | 4.012E-01 | 3.692E-06 |
| 2041 | 2041Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.759E-05 | 2.718E-02 | 6.052E-06 | 8.044E-05 | 2.047E-05 | 2.155E-04 | 1.958E-05 | 7.818E-05 | 8.431E+00 | 2.810E-07 |
| 2041 | 2041Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.259E-04 | 8.568E-04 | 6.213E-05 | 2.311E-05 | 6.412E-06 | 3.138E-04 | 6.135E-06 | 1.298E-04 | 2.422E+00 | 2.886E-06 |
| 2041 | 2041Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.617E-04 | 6.234E-05 | 5.639E-06 | 1.537E-05 | 2.050E-06 | 2.142E-04 | 1.885E-06 | 8.867E-05 | 1.540E+00 | 2.280E-06 |
| 2041 | 2041Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.286E-04 | 4.846E-05 | 8.598E-06 | 4.502E-06 | 1.371E-06 | 9.866E-05 | 1.261E-06 | 3.913E-05 | 4.498E-01 | 3.474E-06 |
| 2041 | 2041Passenger Cars | Passenger Cars | LDA | 6.317E-04 | 3.977E-05 | 6.647E-06 | 3.629E-06 | 1.371E-06 | 9.866E-05 | 1.259E-06 | 3.913E-05 | 3.627E-01 | 2.685E-06 |
| 2041 | 2041Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 7.592E-04 | 4.926E-05 | 8.732E-06 | 3.986E-06 | 1.543E-06 | 9.866E-05 | 1.420E-06 | 3.913E-05 | 3.982E-01 | 3.530E-06 |
| 2042 | 2042Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.827E-05 | 2.669E-02 | 6.406E-06 | 8.050E-05 | 2.129E-05 | 2.155E-04 | 2.037E-05 | 7.818E-05 | 8.437E+00 | 2.976E-07 |
| 2042 | 2042Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.255E-04 | 8.418E-04 | 6.202E-05 | 2.310E-05 | 6.367E-06 | 3.138E-04 | 6.091E-06 | 1.298E-04 | 2.421E+00 | 2.881E-06 |
| 2042 | 2042Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.614E-04 | 6.123E-05 | 5.594E-06 | 1.537E-05 | 2.053E-06 | 2.142E-04 | 1.887E-06 | 8.867E-05 | 1.540E+00 | 2.260E-06 |
| 2042 | 2042Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.191E-04 | 4.764E-05 | 8.430E-06 | 4.486E-06 | 1.328E-06 | 9.866E-05 | 1.221E-06 | 3.913E-05 | 4.483E-01 | 3.406E-06 |
| 2042 | 2042Passenger Cars | Passenger Cars | LDA | 6.241E-04 | 3.936E-05 | 6.547E-06 | 3.619E-06 | 1.329E-06 | 9.866E-05 | 1.222E-06 | 3.913E-05 | 3.617E-01 | 2.646E-06 |
| 2042 | 2042Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 7.386E-04 | 4.772E-05 | 8.361E-06 | 3.958E-06 | 1.491E-06 | 9.866E-05 | 1.371E-06 | 3.913E-05 | 3.955E-01 | 3.379E-06 |
| 2043 | 2043Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 2.939E-05 | 2.590E-02 | 6.953E-06 | 8.049E-05 | 2.238E-05 | 2.155E-04 | 2.142E-05 | 7.818E-05 | 8.437E+00 | 3.230E-07 |
| 2043 | 2043Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.252E-04 | 8.301E-04 | 6.194E-05 | 2.309E-05 | 6.331E-06 | 3.138E-04 | 6.057E-06 | 1.298E-04 | 2.420E+00 | 2.877E-06 |
| 2043 | 2043Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.612E-04 | 6.038E-05 | 5.557E-06 | 1.536E-05 | 2.055E-06 | 2.142E-04 | 1.890E-06 | 8.867E-05 | 1.539E+00 | 2.246E-06 |
| 2043 | 2043Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.114E-04 | 4.699E-05 | 8.302E-06 | 4.475E-06 | 1.293E-06 | 9.866E-05 | 1.189E-06 | 3.913E-05 | 4.471E-01 | 3.355E-06 |
| 2043 | 2043Passenger Cars | Passenger Cars | LDA | 6.179E-04 | 3.904E-05 | 6.469E-06 | 3.612E-06 | 1.294E-06 | 9.866E-05 | 1.190E-06 | 3.913E-05 | 3.609E-01 | 2.614E-06 |
| 2043 | 2043Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 7.195E-04 | 4.637E-05 | 8.042E-06 | 3.934E-06 | 1.442E-06 | 9.866E-05 | 1.326E-06 | 3.913E-05 | 3.931E-01 | 3.250E-06 |
| 2044 | 2044Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 3.150E-05 | 2.436E-02 | 7.929E-06 | 8.040E-05 | 2.414E-05 | 2.155E-04 | 2.310E-05 | 7.818E-05 | 8.427E+00 | 3.683E-07 |
| 2044 | 2044Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.251E-04 | 8.202E-04 | 6.189E-05 | 2.308E-05 | 6.300E-06 | 3.138E-04 | 6.028E-06 | 1.298E-04 | 2.419E+00 | 2.875E-06 |
| 2044 | 2044Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.611E-04 | 5.964E-05 | 5.526E-06 | 1.536E-05 | 2.057E-06 | 2.142E-04 | 1.891E-06 | 8.867E-05 | 1.539E+00 | 2.233E-06 |
| 2044 | 2044Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.054E-04 | 4.650E-05 | 8.207E-06 | 4.465E-06 | 1.265E-06 | 9.866E-05 | 1.163E-06 | 3.913E-05 | 4.462E-01 | 3.316E-06 |
| 2044 | 2044Passenger Cars | Passenger Cars | LDA | 6.129E-04 | 3.880E-05 | 6.409E-06 | 3.605E-06 | 1.266E-06 | 9.866E-05 | 1.164E-06 | 3.913E-05 | 3.603E-01 | 2.590E-06 |
| 2044 | 2044Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 7.043E-04 | 4.545E-05 | 7.827E-06 | 3.914E-06 | 1.401E-06 | 9.866E-05 | 1.288E-06 | 3.913E-05 | 3.911E-01 | 3.163E-06 |
| 2045 | 2045Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 3.435E-05 | 2.258E-02 | 9.205E-06 | 8.029E-05 | 2.611E-05 | 2.155E-04 | 2.498E-05 | 7.818E-05 | 8.415E+00 | 4.275E-07 |
| 2045 | 2045Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.250E-04 | 8.122E-04 | 6.185E-05 | 2.308E-05 | 6.275E-06 | 3.138E-04 | 6.004E-06 | 1.298E-04 | 2.419E+00 | 2.873E-06 |
| 2045 | 2045Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.609E-04 | 5.908E-05 | 5.502E-06 | 1.536E-05 | 2.059E-06 | 2.142E-04 | 1.893E-06 | 8.867E-05 | 1.539E+00 | 2.223E-06 |
| 2045 | 2045Light-Duty Trucks | Light-Duty Trucks | LDT2 | 8.003E-04 | 4.609E-05 | 8.134E-06 | 4.457E-06 | 1.242E-06 | 9.866E-05 | 1.142E-06 | 3.913E-05 | 4.454E-01 | 3.287E-06 |
| 2045 | 2045Passenger Cars | Passenger Cars | LDA | 6.087E-04 | 3.860E-05 | 6.361E-06 | 3.600E-06 | 1.243E-06 | 9.866E-05 | 1.143E-06 | 3.913E-05 | 3.598E-01 | 2.570E-06 |
| 2045 | 2045Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 6.914E-04 | 4.476E-05 | 7.674E-06 | 3.895E-06 | 1.364E-06 | 9.866E-05 | 1.255E-06 | 3.913E-05 | 3.892E-01 | 3.101E-06 |
| 2046 | 2046Heavy-Heavy Duty Trucks | Heavy-Heavy Duty Trucks | HHDT | 3.845E-05 | 2.049E-02 | 1.097E-05 | 8.015E-05 | 2.831E-05 | 2.155E-04 | 2.708E-05 | 7.818E-05 | 8.401E+00 | 5.097E-07 |
| 2046 | 2046Medium-Heavy Duty Trucks | Medium-Heavy Duty Trucks | MHDT | 3.250E-04 | 8.057E-04 | 6.183E-05 | 2.307E-05 | 6.254E-06 | 3.138E-04 | 5.984E-06 | 1.298E-04 | 2.418E+00 | 2.872E-06 |
| 2046 | 2046Light-Heavy Duty Trucks | Light-Heavy Duty Trucks | LHD2 | 2.608E-04 | 5.858E-05 | 5.481E-06 | 1.536E-05 | 2.060E-06 | 2.142E-04 | 1.894E-06 | 8.867E-05 | 1.538E+00 | 2.215E-06 |
| 2046 | 2046Light-Duty Trucks | Light-Duty Trucks | LDT2 | 7.965E-04 | 4.577E-05 | 8.079E-06 | 4.451E-06 | 1.225E-06 | 9.866E-05 | 1.126E-06 | 3.913E-05 | 4.448E-01 | 3.265E-06 |
| 2046 | 2046Passenger Cars | Passenger Cars | LDA | 6.054E-04 | 3.844E-05 | 6.323E-06 | 3.596E-06 | 1.225E-06 | 9.866E-05 | 1.127E-06 | 3.913E-05 | 3.594E-01 | 2.555E-06 |
| 2046 | 2046Light-Light Duty Trucks | Light-Light Duty Trucks | LDT1 | 6.797E-04 | 4.412E-05 | 7.534E-06 | 3.879E-06 | 1.332E-06 | 9.866E-05 | 1.225E-06 | 3.913E-05 | 3.876E-01 | 3.044E-06 |

**Chiquita Canyon Landfill EIR**

Conversion gram/lb: 1 gram = 0.002205 lb

**EMFAC2014 Idling Emission Rates for HHDT**

| | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{2.5}$ | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|
| | lb/hr | lb/hr | lb/hr | lb/hr | lb/hr | lb/hr | lb/hr | lb/hr |
| 2017 | 0.0165 | 0.2316 | 0.0044 | 0.0001 | 0.0007 | 0.0007 | 15.2537 | 0.0002 |
| 2018 | 0.0165 | 0.2323 | 0.0043 | 0.0001 | 0.0007 | 0.0006 | 15.2719 | 0.0002 |
| 2019 | 0.0164 | 0.2336 | 0.0042 | 0.0001 | 0.0007 | 0.0006 | 15.2969 | 0.0002 |
| 2020 | 0.0163 | 0.2349 | 0.0042 | 0.0001 | 0.0006 | 0.0006 | 15.3222 | 0.0002 |
| 2021 | 0.0161 | 0.2367 | 0.0040 | 0.0001 | 0.0006 | 0.0006 | 15.3553 | 0.0002 |
| 2022 | 0.0161 | 0.2374 | 0.0040 | 0.0001 | 0.0006 | 0.0006 | 15.3713 | 0.0002 |
| 2023 | 0.0159 | 0.2387 | 0.0039 | 0.0001 | 0.0006 | 0.0005 | 15.3959 | 0.0002 |
| 2024 | 0.0159 | 0.2399 | 0.0038 | 0.0001 | 0.0006 | 0.0005 | 15.4188 | 0.0002 |
| 2025 | 0.0158 | 0.2410 | 0.0037 | 0.0001 | 0.0005 | 0.0005 | 15.4384 | 0.0002 |
| 2026 | 0.0157 | 0.2421 | 0.0037 | 0.0001 | 0.0005 | 0.0005 | 15.4584 | 0.0002 |
| 2027 | 0.0156 | 0.2428 | 0.0036 | 0.0001 | 0.0005 | 0.0005 | 15.4706 | 0.0002 |
| 2028 | 0.0156 | 0.2434 | 0.0036 | 0.0001 | 0.0005 | 0.0005 | 15.4817 | 0.0002 |
| 2029 | 0.0155 | 0.2448 | 0.0035 | 0.0001 | 0.0005 | 0.0005 | 15.5032 | 0.0002 |
| 2030 | 0.0154 | 0.2456 | 0.0034 | 0.0001 | 0.0005 | 0.0004 | 15.5164 | 0.0002 |
| 2031 | 0.0154 | 0.2464 | 0.0034 | 0.0001 | 0.0005 | 0.0004 | 15.5294 | 0.0002 |
| 2032 | 0.0153 | 0.2471 | 0.0033 | 0.0001 | 0.0004 | 0.0004 | 15.5427 | 0.0002 |
| 2033 | 0.0152 | 0.2479 | 0.0033 | 0.0001 | 0.0004 | 0.0004 | 15.5575 | 0.0002 |
| 2034 | 0.0151 | 0.2492 | 0.0032 | 0.0001 | 0.0004 | 0.0004 | 15.5827 | 0.0001 |
| 2035 | 0.0151 | 0.2501 | 0.0032 | 0.0001 | 0.0004 | 0.0004 | 15.6011 | 0.0001 |
| 2036 | 0.0150 | 0.2508 | 0.0031 | 0.0001 | 0.0004 | 0.0004 | 15.6171 | 0.0001 |
| 2037 | 0.0149 | 0.2515 | 0.0031 | 0.0001 | 0.0004 | 0.0004 | 15.6355 | 0.0001 |
| 2038 | 0.0148 | 0.2524 | 0.0030 | 0.0001 | 0.0004 | 0.0004 | 15.6623 | 0.0001 |
| 2039 | 0.0148 | 0.2532 | 0.0030 | 0.0001 | 0.0004 | 0.0004 | 15.6907 | 0.0001 |
| 2040 | 0.0146 | 0.2540 | 0.0029 | 0.0002 | 0.0004 | 0.0003 | 15.7271 | 0.0001 |
| 2041 | 0.0145 | 0.2547 | 0.0029 | 0.0002 | 0.0003 | 0.0003 | 15.7650 | 0.0001 |
| 2042 | 0.0145 | 0.2549 | 0.0028 | 0.0002 | 0.0003 | 0.0003 | 15.7900 | 0.0001 |
| 2043 | 0.0145 | 0.2545 | 0.0028 | 0.0002 | 0.0003 | 0.0003 | 15.8145 | 0.0001 |
| 2044 | 0.0144 | 0.2538 | 0.0028 | 0.0002 | 0.0003 | 0.0003 | 15.8550 | 0.0001 |
| 2045 | 0.0143 | 0.2527 | 0.0028 | 0.0002 | 0.0003 | 0.0003 | 15.9028 | 0.0001 |
| 2046 | 0.0143 | 0.2508 | 0.0028 | 0.0002 | 0.0003 | 0.0003 | 15.9613 | 0.0001 |

Source: EMFAC 2014: 2011 Vehicle Classes, T7 SWCV (Solid Waste Collection Truck); Diesel Fuel; Area: Los Angeles (SC); Annual Average Emission Rates; Temperature: 68F; Humidity: 55%; Speed: 0mph (idle).

| | CO | NOx | ROG | SOx | $PM_{10}$ | $PM_{2.5}$ | $CO_2$ | $CH_4$ |
|---|---|---|---|---|---|---|---|---|
| | g/hr | g/hr | g/hr | g/hr | g/hr | g/hr | g/hr | g/hr |
| _2017 | 7.49 | 105.01 | 1.99 | 0.07 | 0.31 | 0.30 | 6917.79 | 0.09 |
| _2018 | 7.46 | 105.37 | 1.96 | 0.07 | 0.31 | 0.29 | 6926.03 | 0.09 |
| _2019 | 7.42 | 105.93 | 1.92 | 0.07 | 0.30 | 0.28 | 6937.38 | 0.09 |
| _2020 | 7.37 | 106.51 | 1.88 | 0.07 | 0.29 | 0.28 | 6948.86 | 0.09 |
| _2021 | 7.31 | 107.33 | 1.83 | 0.07 | 0.28 | 0.26 | 6963.86 | 0.08 |
| _2022 | 7.28 | 107.65 | 1.81 | 0.07 | 0.27 | 0.26 | 6971.10 | 0.08 |
| _2023 | 7.23 | 108.24 | 1.77 | 0.07 | 0.26 | 0.25 | 6982.28 | 0.08 |
| _2024 | 7.19 | 108.80 | 1.73 | 0.07 | 0.25 | 0.24 | 6992.66 | 0.08 |
| _2025 | 7.15 | 109.28 | 1.70 | 0.07 | 0.24 | 0.23 | 7001.54 | 0.08 |
| _2026 | 7.11 | 109.79 | 1.66 | 0.07 | 0.23 | 0.22 | 7010.62 | 0.08 |
| _2027 | 7.09 | 110.10 | 1.64 | 0.07 | 0.23 | 0.22 | 7016.15 | 0.08 |
| _2028 | 7.07 | 110.40 | 1.62 | 0.07 | 0.22 | 0.21 | 7021.17 | 0.08 |
| _2029 | 7.02 | 111.01 | 1.58 | 0.07 | 0.21 | 0.21 | 7030.91 | 0.07 |
| _2030 | 6.99 | 111.39 | 1.55 | 0.07 | 0.21 | 0.20 | 7036.92 | 0.07 |
| _2031 | 6.97 | 111.75 | 1.53 | 0.07 | 0.20 | 0.20 | 7042.82 | 0.07 |
| _2032 | 6.94 | 112.07 | 1.51 | 0.07 | 0.20 | 0.19 | 7048.87 | 0.07 |
| _2033 | 6.91 | 112.43 | 1.49 | 0.07 | 0.20 | 0.19 | 7055.57 | 0.07 |
| _2034 | 6.87 | 113.00 | 1.46 | 0.07 | 0.19 | 0.18 | 7067.00 | 0.07 |
| _2035 | 6.83 | 113.42 | 1.44 | 0.07 | 0.19 | 0.18 | 7075.35 | 0.07 |
| _2036 | 6.80 | 113.73 | 1.42 | 0.07 | 0.18 | 0.17 | 7082.59 | 0.07 |
| _2037 | 6.77 | 114.07 | 1.40 | 0.07 | 0.18 | 0.17 | 7090.93 | 0.07 |
| _2038 | 6.73 | 114.48 | 1.38 | 0.07 | 0.17 | 0.17 | 7103.08 | 0.06 |
| _2039 | 6.69 | 114.82 | 1.36 | 0.07 | 0.17 | 0.16 | 7115.95 | 0.06 |
| _2040 | 6.64 | 115.20 | 1.33 | 0.07 | 0.16 | 0.15 | 7132.46 | 0.06 |
| _2041 | 6.59 | 115.52 | 1.30 | 0.07 | 0.16 | 0.15 | 7149.65 | 0.06 |
| _2042 | 6.57 | 115.59 | 1.29 | 0.07 | 0.15 | 0.15 | 7160.98 | 0.06 |
| _2043 | 6.55 | 115.43 | 1.28 | 0.07 | 0.15 | 0.14 | 7172.11 | 0.06 |
| _2044 | 6.53 | 115.10 | 1.27 | 0.07 | 0.14 | 0.14 | 7190.46 | 0.06 |
| _2045 | 6.51 | 114.58 | 1.26 | 0.07 | 0.14 | 0.13 | 7212.17 | 0.06 |
| _2046 | 6.49 | 113.74 | 1.26 | 0.07 | 0.13 | 0.12 | 7238.70 | 0.06 |

## Chiquita Canyon Landfill EIR

**Fugitive $PM_{10}$ Emission Factors for Roads**

**Assumptions:**

Assume $PM_{10}$ control efficiencies are the same for $PM_{2.5}$

**Fugitive Emissions Used in Analysis** [1]

**Trucks:**

| | Uncontrolled / Unmitigated Fugitive Emission Factors (lb/VMT) | | | | Mitigated Fugitive Emission Factors (lb/VMT) | | | |
|---|---|---|---|---|---|---|---|---|
| | Onsite $PM_{10}$ | Offsite $PM_{10}$ | Onsite $PM_{2.5}$ | Offsite $PM_{2.5}$ | Onsite $PM_{10}$ | Offsite $PM_{10}$ | Onsite $PM_{2.5}$ | Offsite $PM_{2.5}$ |
| **Paved Roads** | 2.16E-01 | 1.21E-03 | 5.30E-02 | 2.98E-04 | 2.16E-01 | 1.21E-03 | 5.30E-02 | 2.98E-04 |
| **Unpaved Roads** | 1.06 | NA | 0.11 | NA | 4.77E-01 | NA | 4.77E-02 | NA |

**Mitigation Measures:**

| Measure | Control Efficiency | Applicable Source | Reference |
|---|---|---|---|
| Watering 2x daily, use of gravel cover on all unpaved roads, paving as much as possible, and limiting the maximum vehicle speed to 15 miles per hour. | 55% | Unpaved Roads | South Coast Air Quality Management District (SCAQMD). 2013c. SCAQMD CEQA Handbook Table XI-D: Unpaved Roads Rev 4/2007. Available online at: http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html. |

## Chiquita Canyon Landfill EIR

**Fugitive $PM_{10}$ Emission Factors for Roads**

### Emission Factor Calculations

**Travel On Paved Roads** [2]

$EF^{(1)} = k\ [(sL)^{0.91}]\ [(W)^{1.02}]\ [1-P/4N]$ lb/vehicle mile traveled (vmt)

| *Parameter* | *Description* | *Value* | | |
|---|---|---|---|---|
| k | Constant used to calculate $PM_{10}$ | 0.0022 | | |
| k | Constant used to calculate $PM_{2.5}$ | 0.00054 | | |
| P | Number of Days > 0.1 in. Precipitation (Annual Ave. for Los Angeles - South Coast)[4]: | 33 | | |
| N | Number of Days in Averaging Period: | 365 | | |
| | | Onsite SL (Paved Roads) | Offsite SL (Paved Roads) | |
| SL (Paved Roads) | Silt Loading (g/m2)[5] | 7.4 | | 0.2 |

**Vehicle Travel on Unpaved Surfaces at Industrial Sites**[3]

$EF^{(1)} = k\ [(s/12)^{a}]\ [(W/3)^{b}]\ [(365-P)/365]$ lb/vehicle mile traveled (vmt)

| *Parameter* | *Description* | *Value* |
|---|---|---|
| s | Silt Loading (g/m2)[6] | 4.0 |
| P | Number of Days > 0.1 in. Precipitation (Annual Ave. for Los Angeles - South Coast)[4]: | 33 |

| | Constants: $PM_{10}$ | Constants: $PM_{2.5}$ |
|---|---|---|
| k | 1.5 | 0.15 |
| a | 0.9 | 0.9 |
| b | 0.45 | 0.45 |

| Vehicle Type | W: Mean Vehicle Weight (tons) | Vehicle Fleet Mix (Percent) [7] | Fugitive Emission Factors on Paved Roads (lb/VMT) | | | |
|---|---|---|---|---|---|---|
| | | | Onsite $PM_{10}$ | Offsite $PM_{10}$ | Onsite $PM_{2.5}$ | Offsite $PM_{2.5}$ |
| LDA | 0.94 | 0.10 | 1.24E-02 | 4.65E-04 | 3.05E-03 | 1.14E-04 |
| HHDT | 23.25 | 0.52 | 3.29E-01 | 1.23E-02 | 8.08E-02 | 3.02E-03 |
| MHDT | 11.75 | 0.24 | 1.64E-01 | 6.14E-03 | 4.03E-02 | 1.51E-03 |
| LHDT2 | 2.38 | 0.13 | 3.21E-02 | 1.20E-03 | 7.88E-03 | 2.95E-04 |
| LDT2 | 6.00 | 0.00 | 8.26E-02 | 3.09E-03 | 2.03E-02 | 7.59E-04 |
| LDT1 | 4.63 | 0.01 | 6.34E-02 | 2.37E-03 | 1.56E-02 | 5.82E-04 |
| Average On-Site | 15.39 | - | 2.16E-01 | - | 5.30E-02 | - |
| Average Off-Site [8] | 2.40 | - | - | 1.21E-03 | - | 0.000298001 |

| Fugitive Emission Factors on Unpaved Roads (lb/VMT) | |
|---|---|
| Onsite $PM_{10}$ | Onsite $PM_{2.5}$ |
| 0.30 | 0.03 |
| 1.28 | 0.13 |
| 0.94 | 0.09 |
| 0.46 | 0.05 |
| 0.69 | 0.07 |
| 0.62 | 0.06 |
| 1.06 | 0.11 |

## Chiquita Canyon Landfill EIR

**Fugitive $PM_{10}$ Emission Factors for Roads**

| | Vehicle Weight Class (lbs)[9] | | | |
|---|---|---|---|---|
| Vehicle Class | Low | High | Median Weight (lbs) | Median Weight (tons) |
| LDA | 0 | 3750 | 1875 | 0.94 |
| HHDT | 33001 | 60000 | 46500.5 | 23.25 |
| MHDT | 14001 | 33000 | 23500.5 | 11.75 |
| LDT2 | 3751 | 5750 | 4750.5 | 2.38 |
| LHD2 | 10001 | 14000 | 12000.5 | 6.00 |
| LHD1 | 8501 | 10000 | 9250.5 | 4.63 |
| LDT1 | 0 | 3750 | 1875 | 0.9375 |

| Offsite SL Loading: | | | | |
|---|---|---|---|---|
| ADT: | < 500 | 500 - 5,000 | 5,000 - 10,000 | >10,000 |
| SL Loading (g/m2)[5]: | 0.6 | 0.2 | 0.06 | .03 / 0.015 limited |

[1]Emissions are based on average weight of vehicles on the roadway and are not calculated individually as per AP42 13.2.1. Emission factor calculations are not intended to be used to calculate a separate emission factor for each vehicle weight class, but only one EF to represent the "fleet" average weight of all vehicles traveling the road.

[2]Emission factors were calculated using EPA AP-42 13.2.1, Equation 2 to estimate emission factor on an annual basis. The hourly emission calculation was not used because hourly precipitation data are not available and the predictive analysis is more appropriate for this application. The daily emissions and hourly emissions are scaled based on the annual emission factors and operating scenario.

[3]Emission factors were calculated using EPA AP-42 13.2.2, Equations 1a and 2.

[4]Average Los Angeles - South Coast precipitation conditions were taken from CalEEMod Appendix D, Table 1.1.

[5]Silt content was obtained from EPA AP42 Table 13.2.1-3. The value for municipal solid waste landfill was used for onsite. The ubiquitous baseline value for road with 500 < ADT , 5,000 was used for offsite, since the project will generate at least 1,500 ADT.

[6]Silt content was obtained from SCAQMD CEQA Handbook, Table A9-9 in order to account for the gravel roads.

[7]Based on the existing fleet mix and the addition of vehicles from the proposed project. Calculated based on average vehicle totals in Table 2-5 of the Project Description dated 10/03/2016.

[8] Average weight of all vehicles traveling on public roads taken from Appendix A of CalEEMod Use Guide.

[9]Vehicle Weight Class taken from EMFAC2011 LDV User Guide Table 3.1 for LDV vehicles and EMFAC2007 User Guide Table 1 for HD vehicles. Assume that passenger cars have the same median weight as light duty trucks (LDT1).

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September 28, 2016
File No. 01204123.13

# MEMORANDUM

TO: Tom Reilly (Chiquita Canyon Landfill)

FROM: John Henkelman (SCS)

SUBJECT: Impact of Cover Changes on Landfill Gas Collection Efficiency at Chiquita Canyon Landfill

At the request of Chiquita Canyon Landfill (Chiquita or Site), SCS Engineers (SCS) has evaluated the potential benefits of changing cover at the Site. Chiquita has proposed these changes with the objective of improving the landfill gas (LFG) collection efficiency at the Site, with the benefit of reducing fugitive emissions of greenhouse gases (GHGs) and toxic air contaminants (TACs).

Because each cover type has an associated LFG collection efficiency, changing one cover type to another cover type can affect the overall site-wide collection efficiency. Changing lower collection efficiency areas to higher collection efficiency areas can have a positive impact on the overall site-wide collection efficiency. And likewise, changing higher collection efficiency areas to lower collection efficiency areas can have a negative impact on the overall site-wide collection efficiency.

There are three different cover types currently used at the Site: daily cover, intermediate cover and final cover. The approximate area of each cover type is 36 acres of daily cover, 146 acres of intermediate cover, and 69 acres of final cover. The United States Environmental Protection Agency (EPA) in its Mandatory Reporting Regulation (MRR) for GHG provides estimated average LFG collection efficiency for these cover types: 65 percent for daily cover with LFG collection (cover type A3), 75 percent for intermediate cover with LFG collection (cover type A4), and 95 percent for final cover with LFG collection (cover type A5).

Using MRR methodology, the acres and the estimated average LFG collection efficiency of the site cover types, a weighted site-wide average collection efficiency for GHG emissions of 78% can be calculated. Because the 78 percent is lower than the calculated site specific site-wide LFG collection efficiency of 81.7[1]percent, SCS increased the collection efficiency of the three cover types by 4.2 percent to reconcile the difference between the two values. This approach is consistent with the methodology developed by the Solid Waste Industry for Climate Solutions (SWICS) an its *Current MSW Industry Position and State-of-the-Practice on LFG Collection*

[1] Previous assessment of the LFG collection efficiency at Chiquita by Golder and Associates (Golder) and the South Coast Air Quality Management District (SCAQMD) based on a LFG generation modeling and measured LFG recovery

*Efficiency, Methane Oxidation, and Carbon Sequestration in Landfills* document (SWICS 2009), The collection efficiency by cover type before and after this adjustment type is shown in ***Table 1***.

**Table 1 – Collection Efficiency by Area Type**

| Cover Type | Collection efficiency (base) | Collection efficiency (adjusted) | SWICS Range |
|---|---|---|---|
| A3 (daily cover) | 60% | 63% | 50%-70% |
| A4 (intermediate cover) | 75% | 78% | 54%-95% |
| A5 (final cover or membrane) | 95% | 99% | 90%-99% |

One of the options being considered by Chiquita is using an impermeable membrane to cover side slopes, which are currently intermediate cover (cover type A4). SCS agrees that this type of membrane covering would be considered cover type A5 under the MRR. Type A5 cover is described in Table HH-3 of the MMR as:

> "Area with a final soil cover of 3 feet or thicker of clay and/or geomembrane cover system and active gas collection"

The estimated benefits of converting intermediate cover (A4) to final cover (A5) are shown in ***Table 2*** for different combinations of cover and rates of conversion. This conversion from intermediate cover to final cover is expected to be achieved by adding an impermeable membrane to side slopes, but could be achieved by converting any of the landfill areas with intermediate cover to final cover.

**Table 2 – Collection Efficiency with Conversion of Intermediate Cover to Final Cover**

| Area Converted to Final Cover | 2015 Value | 10 acres converted | 20 acres converted | 30 acres converted | 40 acres converted | 50 acres converted | 60 acres converted | 70 acres converted |
|---|---|---|---|---|---|---|---|---|
| A3 (daily cover) (acres) | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| A4 (intermediate cover) (acres) | 146 | 136 | 126 | 116 | 106 | 96 | 86 | 76 |
| A5 (final cover or membrane) (acres) | 69 | 79 | 89 | 99 | 109 | 119 | 129 | 139 |
| **Collection Efficiency** | **81.7%** | **82.5%** | **83.4%** | **84.2%** | **85.0%** | **85.9%** | **86.7%** | **87.5%** |

As the amount of intermediate cover (A4) converted to final cover (A5) increases, the collection efficiency increases. This evaluation indicates that by converting 40 acres of existing intermediate cover to final cover, WCI should achieve a collection efficiency of 85 percent.

**References**

EPA, 40 Code of Federal Regulations Part 98 Subpart HH, November 2013

Golder Associates, *Landfill Gas Model, Chiquita Canyon Landfill, Los Angeles County, California,* April 2016

SWICS, *Current MSW Industry Position and State-of-the-Practice on LFG Collection Efficiency, Methane Oxidation, and Carbon Sequestration in Landfills*, 2009

October 3, 2016 Project No. 093-9747304

Mr. Steve Cassulo
General Manager
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, California 91384

**RE: LANDFILL GAS MODEL, CHIQUITA CANYON LANDFILL, LOS ANGELES COUNTY, CALIFORNIA**

Dear Steve:

This letter report updates previous landfill gas modeling performed by Golder and summarized in letter reports dated April 18, 2011 and March 10, 2015.

## 1.0 INTRODUCTION

The Chiquita Canyon Landfill (CCL) is a permitted Class III landfill. The landfill has a currently permitted air space of approximately 62.9 million cubic yards (cy). Chiquita is proposing to revise the master plan, increasing the air space by approximately 72.9 million cy to a total of approximately 134.8 million cy. CCL is also proposing to increase the permitted disposal rate for municipal solid waste (MSW) from 30,000 tons per week to 60,000 tons per week.

CCL currently has a landfill gas (LFG) collection system consisting of vertical collection wells and horizontal collectors. There are two 120 million Btu per hour LFG combustion flares. In November 2010, a 9.4 megawatt LFG-fueled electrical generation facility became operational.

As part of the approval process for the proposed landfill expansion, an environmental impact report is being prepared. For the air quality impact analysis in the Draft Environmental Impact Report, Chiquita Canyon Landfill Master Plan Revision (DEIR), an average LFG collection efficiency of 85% was used based on Golder's 2011 and 2015 reports. The 85% average LFG collection efficiency was determined from LFG collection information compiled for CCL by SCS Engineers and reported to the South Coast Air Quality Management District (SCAQMD).

The SCAQMD in its review of the DEIR recommended using a default 75% collection efficiency. Based on the SCAQMD's questions, Golder reviewed and updated its previous reports. This letter report presents the update.

## 2.0 LANDFILL GAS MODEL

Golder prepared estimates of annual LFG generation using the U.S. Environmental Protection Agency (USEPA) Landfill Gas Emissions Model (LandGEM, Version 3.02, May 2005). The model is recommended by USEPA as documented in the Climate Leader Greenhouse Gas Inventory Protocol "Direct Emissions from Municipal Solid Waste Landfilling October 2004."

The LandGEM model is based on a first-order decomposition rate equation and provides a simple approach to estimating annual gas generation. The model assumes that a fixed fraction of the MSW available in a given year will degrade. The main parameters used by the model are MSW disposal rates, methane



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generation constant (k), and potential methane generation capacity ($L_o$). The k factor represents the amount of MSW that degrades over a given amount of time, which determines how fast the MSW decays based on the assumed moisture content of the MSW. The k factor selection is primarily controlled by MSW type (organic waste degradability) and moisture content based on the average site precipitation.

The potential methane generation capacity, $L_o$, depends on the type and composition of MSW placed in the landfill. The higher the cellulose content of the MSW (degradable organic carbon), the higher the value of $L_o$.

The LandGEM model, like most models, has inherent limitations. For example, the LandGEM model assumes unchanging MSW and landfill conditions in predicting LFG generation. However, the LandGEM model is generally considered to be the regulatory standard and is regularly used to predict LFG generation throughout California and the US.

## 3.0 LANDGEM MODEL INPUT PARAMETERS

The LandGEM model provides a limited number of default values for k and $L_o$. The default values for k and $L_o$ used are discussed below.

### 3.1 K Value

The default k value used for the modeling was based on the annual rainfall at CCL. Based on the semi-arid conditions at CCL and an average annual rainfall of less than 20 inches per year, a k value of 0.02 $year^{-1}$ was used, which is the LandGEM default value for semi-arid areas. However, California has experienced a record-setting drought over the last several years, which likely decreased the moisture content of the MSW and the resulting methane generation. The LandGEM model cannot reflect such temporal changes in precipitation or the resulting moisture content of the MSW.

### 3.2 $L_o$ Value

A $L_o$ default value of 100 cubic meters of methane per megagram ($m^3/Mg$) of MSW was used for the modeling. The $L_o$ default value was developed by USEPA using national MSW characteristics. However, as a result of California's changing waste stream over the last 20 years, the $L_o$ value for California MSW has decreased from a peak of 97 $m^3/Mg$ for the 1993 to 1995 period to 77 $m^3/Mg$ for the 1996 to 2002 period to 60 $m^3/Mg$ for 2003 to the present[1]. The LandGEM model cannot handle a variable $L_o$. As a result, the LandGEM model conservatively assumes more LFG generation than what actually occurs.

### 3.3 Waste Acceptance Rate

The waste acceptance rate used for the modeling was based on historic and estimated future waste inflow rates. The annual waste inflow rates were based on the following:

- 1972 to 1987: LFG generation model prepared by Shaw EMCON/OWT Inc., dated July 16, 2004
- 1988 to 2009: Table 4, *Joint Technical Document, Chiquita Canyon Landfill, Los Angeles County, California* (Golder, April 2010, Revised July 2010)
- 2010 to 2015: Site records of MSW disposed

[1] Derived from "Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emission Inventories," May 2010

- 2016: Currently permitted maximum MSW inflow rate, based on the existing Conditional Use Permit, of 30,000 tons/week [~1.56 million tons per year (MMton)/year]
- 2017 to 2023: Assumed linear increase from the currently permitted maximum MSW inflow rate of 30,000 tons/week to the proposed 60,000 tons/week
- 2024 to 2039: Proposed MSW inflow rate of 60,000 tons/week (~3.12 MMtons/year)
- 2016 to 2039: Assumed beneficial use waste inflow rate of 20,000 tons/week (~1.04 MMtons/year), which is assumed to be inert and non-LFG generating

Based on the above, the remaining landfill capacity (~1.04 MMcy as of January 1, 2016), is estimated to be reached in 2039. At that time, approximately 98 million tons of MSW will have been disposed over the landfill's operating life.

## 4.0 LANDGEM MODEL RESULTS

The LandGEM model output for CCL is provided in Attachment A. The peak methane generation (8.292 x $10^4$ megagrams) is predicted to occur in 2039. Assuming the LFG is comprised of 50 percent methane, the average LFG flow in the peak year is 16,455 standard cubic feet per minute (scfm).

The LandGEM model results are based on standard conditions of 68° F and 14.7 pounds per square inch absolute (psia) pressure. AB-32 and SCAQMD Rule 1150.1 require reporting LFG volumes and flow rates based on standard conditions of 60° F and 14.7 psia. Therefore, in order to compare LandGEM model results with actual LFG volumes and flow rates reported to the SCAQMD by CCL, it is necessary to adjust the LandGEM model results to standard conditions of 60° F and 14.7 psia. The conversion factor of 99.220616 standard cubic feet per minute per giga-gram (scfm/Gg-yr) of methane contained in AB-32[2] was used. Although the temperature adjustment is minor, it does affect the results. (Golder's previous reports did not include the temperature adjustment, since it is relatively minor.)

Table 1 includes both the LFG flow rate from the LandGEM model and the LandGEM LFG flow rate adjusted to 60° F and 14.7 psia standard conditions.

## 5.0 LANDFILL GAS COLLECTION EFFICIENCIES

For purposes of estimating LFG flare capacity requirements and future greenhouse gas emissions associated with the revised master plan, the annual and average LFG collection efficiencies were estimated. Table 1 presents LandGEM model results and LFG flow rates derived from data reported to the SCAQMD by CCL. The LandGEM model results have been adjusted to 60°F to conform to the SCAQMD reporting requirements. CCL LFG flow meters are calibrated to 60°F consistent with SCAQMD reporting requirements and are certified by the meter manufacturer.

The LandGEM model results assume a methane content of 50 percent. The actual LFG flow rate data has been normalized to 50 percent methane for comparison to the adjusted LandGEM model results. The actual LFG flow rate is normalized by determining the total methane volume collected based on the total LFG collected and the average methane content of the LFG, averaged over a year (365 days and 1,440 minutes per day). The normalized LFG flow rate is then equal to the methane flow rate divided by 50 percent.

The average LFG collection efficiency over the 11-year period, shown in Table 1, is 83.5 percent compared to the previously determined 85%. This average collection efficiency is supportable based on the lack of

[2] Title 17, California Code of Regulations (AB-32), Appendix I

exceedances of methane concentration thresholds for surface emission monitoring and perimeter monitoring, and the methane concentrations of the collected LFG, as well as the many references described below.

Although a LFG collection efficiency of 75 percent is often used, this rate was based on surveys of industry estimates (Leatherwood, 2002). A number of field investigations to quantify collection efficiency have been performed (e.g., Huitric and Kong, 2006; Huitric, et al., 2007; Spokas, et al., 2006). In Leatherwood (2002), Pacific Energy measured collection efficiencies at 85, 90, and 95 percent at three landfills with energy generation facilities. LFG collection efficiencies in California greater than the 75 percent rate are also supported by other studies and various governmental and professional entities (e.g., ARF, 2007; Bentley et al., 2005; CARB, 2009, 2011; Michels and Hamblin, 2006; SCS, 2007; SWANA, 2010; USEPA, 2009). A weighted average LFG collection efficiency of 89.7 percent has been reported for the Los Angeles County Sanitation District's landfills (Case et al., 2010). In its technical analyses, CARB (2009, 2011) used LFG collection efficiencies of 87 and 83 percent, respectively, to be representative of California landfills.

As can be seen from Table 1, the LFG collection efficiency has varied from year to year for the 11 years of data shown. As described previously, the LandGEM model assumes unchanging conditions in predicting LFG generation. However, a landfill is constantly changing with California's record-setting drought and changing MSW stream as examples. Operational variables, such as annual downtime, collection field tuning, and methane content changes that affect gas density, can also affect reported volumes of collected LFG and, thus, the calculated collection efficiency.

LFG collection efficiency is rarely constant from year to year. Given the variables described and their potential impact on LFG collection volumes, using the collection efficiency averaged over an extended period is more likely to reflect longer-term collection efficiency than a collection efficiency based on a shorter time period that could be affected by a variable, such as the drought. Accordingly, for forecasting future collection efficiency, an average collection efficiency based on a longer record period is more appropriate than using the collection efficiency from a single year or a few number of years.

## 6.0 DISCUSSION

The above information was provided to the SCAQMD for review. After reviewing the revised 83.5% average collection efficiency calculation and other information provided in responses to its comments, the SCAQMD indicated that there was another approach to calculating the overall average collection efficiency that should be considered and, if used, would generate an average collection efficiency of 81.7% ("Alternate Approach"). The Alternate Approach sums all the annual LFG collected volumes and divides that sum by the sum of all the annual forecasted LFG generation volumes, thus calculating the percentage of LFG collected for the period under consideration, as shown in Table 2. The SCAQMD indicated that both approaches to calculating the average LFG collection efficiency are mathematically acceptable.

The SCAQMD also commented that Los Angeles County, as the lead agency for CEQA, should consider the information and determine the appropriate LFG collection efficiency for use in the DEIR, and ensure that there was evidence in the record to support its determination.

During a meeting with the Los Angeles County Department of Public Works, the above information was presented. Additionally, the difference between the two methods of determining average LFG collection efficiency was discussed. In our opinion, only the Golder Approach represents average collection efficiency. The Alternate Approach, by contrast, calculates the percentage of LFG collected over a period of time and not the average collection efficiency. The Alternate Approach would yield the average collection efficiency if the same amount of LFG was generated each year, but that is not the case. Each year is unique and should be treated as a unique event. Because of this, we believe the approach of averaging

the annual collection efficiencies yields a more representative value for average collection efficiency. Table 3 illustrates this point.

Example 1 in Table 3 shows a hypothetical 10 years of constant LFG generation with the quantity of LFG collected varying for each year. As can be seen, the percentage of total LFG collected (Alternate Approach) is the same as the overall average collection efficiency based on the annual collection efficiencies (Golder Approach).

In Example 2, the annual LFG generation is increasing each year, as would be predicted by the LandGEM model. The overall average collection efficiency (Golder Approach) is the same as in Example 1. However, the percentage of the total LFG collected (Alternate Approach) is greater than in Example 1.

In Example 3, the same annual LFG generation as in Example 2 is assumed. However, the annual collection efficiencies are reversed, e.g., the Example 3 Year 1 collection efficiency is the same as the Example 2 Year 10 efficiency. Although the overall collection efficiency (Golder Approach) in Example 3 is the same as Example 2, the percentage of total LFG collected (Alternate Approach) is less.

These examples illustrate that the percentage of total LFG collected (Alternate Approach) is highly variable and is not the same as the average collection efficiency (Golder Approach). The Alternate Approach is more of a weighted average giving more weight to years with more LFG predicted and collected. As a result, use of the Alternate Approach to determine the overall average collection efficiency can understate (or overstate) the overall average collection efficiency when calculated over a multi-year period with variable annual predicted LFG generation rates.

Despite the advantages of the Golder Approach over the Alternate Approach, Los Angeles County indicated that it would prefer the more conservative LFG collection efficiency of 81.7%, based on the Alternate Approach.

Golder continues to believe that its approach to determining the average LFG collection efficiency is the most appropriate. An average LFG collection efficiency of 83.5%, as determined for CCL, is consistent with studies of LFG collection efficiencies at other California landfills and is considerably lower than some average LFG collection efficiencies, including landfills operated by the Los Angeles County Sanitation District. However, Los Angeles County, as the lead agency, is requiring that a more conservative approach be employed using an average LFG collection efficiency of 81.7%.

## 7.0 REFERENCES

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## 8.0 CLOSING

If you have any questions or need any other information, please contact me.

Sincerely,

**GOLDER ASSOCIATES INC.**

Richard D. Haughey, PE
Associate / Practice Leader

cc: Mike Dean, Waste Connections, Inc.
Tom Reilly, Waste Connections, Inc.
Brenda Eells, CH2M

Attachment: LandGEM Model Results

**Table 1**
**Chiquita Canyon Landfill**
**Landfill Gas Collection Efficiency**

| Year | LandGEM [1] (standard cubic feet per minute) | Adjusted LandGEM [2] (standard cubic feet per minute) | Actual Flow (standard cubic feet per minute) [3] | Collection Efficiency (%) |
|---|---|---|---|---|
| 2001 – 2002 [4] | 2,913 | 2,870 | 2,748 | 96 |
| 2002 – 2003 [4] | 3,216 | 3,169 | 3,348 | 106 |
| 2006 [4] | 4,133 | 4,071 | 3,955 | 97 |
| 2007 [4] | 4,423 | 4,358 | 3,851 | 88 |
| 2008 [4] | 4,710 | 4,640 | 3,631 | 78 |
| 2009 [5] | 4,981 | 4,907 | 3,769 | 77 |
| 2010 [4] | 5,049 | 4,974 | 3,784 | 76 |
| 2011 [6] | 5,212 | 5,135 | 3,968 | 77 |
| 2012 [6] | 5,431 | 5,351 | 4,161 | 78 |
| 2013 [6] | 5,548 | 5,466 | 4,098 | 75 |
| 2014 [6] | 5,688 | 5,603 | 3,983 | 71 |
| | | | **Average** | **83.5** |

[1] Average annual flow rate from LandGEM model results (see Attachment 1)

[2] LandGEM model average annual flow rates adjusted to 60°F standard conditions using the AB-32 conversion factor of 99.220616 scfm/Gg-yr

[3] Average annual flow rate based on 365 days per year and normalized to 50% methane

[4] Actual flow rate determined from *Site Specific Characteristic* and *Calendar Year Operating and Compliance Report Summary*, SCS Engineers

[5] Actual flow rate determined from *Heat Input Capacity Report for Chiquita Canyon, Castaic, California*, SCS Engineers

[6] Actual flow rate determined from *Annual Rule 1150.1 Compliance Plan Report for Chiquita Canyon Landfill, Castaic, California*, SCS Engineers

**Table 2**
**Chiquita Canyon Landfill**
**Landfill Gas Collection Efficiency**
**Alternate Approach**

| Year | LandGEM LFG Generation (standard cubic foot per minute) | LFG Collection (standard cubic foot per minute) | Collection Efficiency (%) |
|---|---|---|---|
| 2001 - 2002 | 2,870 | 2,748 | N/A |
| 2002 – 2003 | 3,169 | 3,348 | N/A |
| 2006 | 4,071 | 3,955 | N/A |
| 2007 | 4,358 | 3,851 | N/A |
| 2008 | 4,640 | 3,631 | N/A |
| 2009 | 4,907 | 3,769 | N/A |
| 2010 | 4.974 | 3,784 | N/A |
| 2011 | 5,135 | 3,968 | N/A |
| 2012 | 5,351 | 4,161 | N/A |
| 2013 | 5,466 | 4,098 | N/A |
| 2014 | 5,603 | 3,983 | N/A |
| **2001-2014 (11 years)** | 50,544 | 41,296 | **81.7 (Average of Total LFG Collected Over 11 Years)** |

**Table 3**
**Chiquita Canyon Landfill**
**Landfill Gas Collection Efficiency**
**Comparison of Approaches**

| | Example 1 | | | Example 2 | | | Example 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Year** | **LFG Generated** | **LFG Collected** | **Collection Efficiency** | **LFG Generated** | **LFG Collected** | **Collection Efficiency** | **LFG Generated** | **LFG Collected** | **Collection Efficiency** |
| 1 | 100 | 55 | 55.0 | 100 | 55 | 55.0 | 100 | 98 | 98.0 |
| 2 | 100 | 61 | 61.0 | 120 | 73 | 60.8 | 120 | 110 | 91.9 |
| 3 | 100 | 67 | 67.0 | 160 | 107 | 66.9 | 160 | 143 | 89.1 |
| 4 | 100 | 69 | 69.0 | 210 | 145 | 69.0 | 210 | 164 | 78.1 |
| 5 | 100 | 72 | 72.0 | 240 | 173 | 72.1 | 240 | 180 | 75.2 |
| 6 | 100 | 75 | 75.0 | 290 | 218 | 75.2 | 290 | 209 | 72.1 |
| 7 | 100 | 78 | 78.0 | 310 | 242 | 78.1 | 310 | 214 | 69.0 |
| 8 | 100 | 89 | 89.0 | 350 | 312 | 89.1 | 350 | 234 | 66.9 |
| 9 | 100 | 92 | 92.0 | 370 | 340 | 91.9 | 370 | 225 | 60.8 |
| 10 | 100 | 98 | 98.0 | 440 | 431 | 98.0 | 440 | 242 | 55.0 |
| | Average Annual LFG Collection Efficiency (Golder Approach) | | **75.6** | | | **75.6** | | | **75.6** |
| Total | 1,000 | 756 | | 2,590 | 2,096 | | 2,590 | 1,819 | |
| | Percentage Total LFG Collected Over 10 Years (Alternate Approach) | | **75.6** | | | **80.9** | | | **70.2** |

# ATTACHMENT 1
# LANDGEM MODEL RESULTS


# Summary Report

**Landfill Name or Identifier:** Chiquita Canyon Landfill

**Date:** Tuesday, March 15, 2016

**Description/Comments:**

**About LandGEM:**

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} kL_o \left(\frac{M_i}{10}\right) e^{-kt_{ij}}$$

Where,

$Q_{CH4}$ = annual methane generation in the year of the calculation ($m^3/year$)
i = 1-year time increment
n = (year of the calculation) - (initial year of waste acceptance)
j = 0.1-year time increment
k = methane generation rate ($year^{-1}$)
$L_o$ = potential methane generation capacity ($m^3/Mg$)
$M_i$ = mass of waste accepted in the $i^{th}$ year ($Mg$)
$t_{ij}$ = age of the $j^{th}$ section of waste mass $M_i$ accepted in the $i^{th}$ year (*decimal years*, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

## Input Review

LANDFILL CHARACTERISTICS

| | | |
|---|---|---|
| Landfill Open Year | **1972** | |
| Landfill Closure Year (with 80-year limit) | **2039** | |
| *Actual Closure Year (without limit)* | ***2039*** | |
| Have Model Calculate Closure Year? | **No** | |
| Waste Design Capacity | **97,985,512** | *short tons* |

MODEL PARAMETERS

| | | |
|---|---|---|
| Methane Generation Rate, k | **0.020** | *year $^{-1}$* |
| Potential Methane Generation Capacity, $L_o$ | **100** | *$m^3$/Mg* |
| NMOC Concentration | **4,000** | *ppmv as hexane* |
| Methane Content | **50** | *% by volume* |

GASES / POLLUTANTS SELECTED

| | |
|---|---|
| Gas / Pollutant #1: | **Total landfill gas** |
| Gas / Pollutant #2: | **Methane** |
| Gas / Pollutant #3: | **Carbon dioxide** |
| Gas / Pollutant #4: | **NMOC** |

WASTE ACCEPTANCE RATES

| Year | Waste Accepted | | Waste-In-Place | |
|---|---|---|---|---|
| | *(Mg/year)* | *(short tons/year)* | *(Mg)* | *(short tons)* |
| 1972 | 135,159 | 148,675 | 0 | 0 |
| 1973 | 135,159 | 148,675 | 135,159 | 148,675 |
| 1974 | 135,159 | 148,675 | 270,318 | 297,350 |
| 1975 | 135,159 | 148,675 | 405,477 | 446,025 |
| 1976 | 135,159 | 148,675 | 540,636 | 594,700 |
| 1977 | 135,159 | 148,675 | 675,795 | 743,375 |
| 1978 | 146,178 | 160,796 | 810,955 | 892,050 |
| 1979 | 146,178 | 160,796 | 957,133 | 1,052,846 |
| 1980 | 146,178 | 160,796 | 1,103,311 | 1,213,642 |
| 1981 | 146,178 | 160,796 | 1,249,489 | 1,374,438 |
| 1982 | 146,178 | 160,796 | 1,395,667 | 1,535,234 |
| 1983 | 146,178 | 160,796 | 1,541,845 | 1,696,030 |
| 1984 | 146,178 | 160,796 | 1,688,024 | 1,856,826 |
| 1985 | 146,178 | 160,796 | 1,834,202 | 2,017,622 |
| 1986 | 146,178 | 160,796 | 1,980,380 | 2,178,418 |
| 1987 | 146,178 | 160,796 | 2,126,558 | 2,339,214 |
| 1988 | 1,417,697 | 1,559,467 | 2,272,736 | 2,500,010 |
| 1989 | 420,184 | 462,202 | 3,690,434 | 4,059,477 |
| 1990 | 509,735 | 560,709 | 4,110,617 | 4,521,679 |
| 1991 | 659,835 | 725,819 | 4,620,353 | 5,082,388 |
| 1992 | 542,202 | 596,422 | 5,280,188 | 5,808,207 |
| 1993 | 360,609 | 396,670 | 5,822,390 | 6,404,629 |
| 1994 | 479,124 | 527,036 | 6,182,999 | 6,801,299 |
| 1995 | 393,677 | 433,045 | 6,662,123 | 7,328,335 |
| 1996 | 405,285 | 445,814 | 7,055,800 | 7,761,380 |
| 1997 | 724,025 | 796,428 | 7,461,085 | 8,207,194 |
| 1998 | 1,031,471 | 1,134,618 | 8,185,111 | 9,003,622 |
| 1999 | 1,172,200 | 1,289,420 | 9,216,582 | 10,138,240 |
| 2000 | 1,154,355 | 1,269,790 | 10,388,782 | 11,427,660 |
| 2001 | 1,284,887 | 1,413,376 | 11,543,136 | 12,697,450 |
| 2002 | 1,355,419 | 1,490,961 | 12,828,024 | 14,110,826 |
| 2003 | 1,401,165 | 1,541,282 | 14,183,443 | 15,601,787 |
| 2004 | 1,416,686 | 1,558,355 | 15,584,608 | 17,143,069 |
| 2005 | 1,408,262 | 1,549,088 | 17,001,295 | 18,701,424 |
| 2006 | 1,399,063 | 1,538,969 | 18,409,556 | 20,250,512 |
| 2007 | 1,402,853 | 1,543,138 | 19,808,619 | 21,789,481 |
| 2008 | 1,367,784 | 1,504,562 | 21,211,472 | 23,332,619 |
| 2009 | 625,194 | 687,713 | 22,579,255 | 24,837,181 |
| 2010 | 990,725 | 1,089,797 | 23,204,449 | 25,524,894 |
| 2011 | 1,209,375 | 1,330,312 | 24,195,174 | 26,614,691 |

WASTE ACCEPTANCE RATES (Continued)

| Year | Waste Accepted | | Waste-In-Place | |
|---|---|---|---|---|
| | *(Mg/year)* | *(short tons/year)* | *(Mg)* | *(short tons)* |
| 2012 | 842,605 | 926,866 | 25,404,548 | 27,945,003 |
| 2013 | 935,751 | 1,029,326 | 26,247,154 | 28,871,869 |
| 2014 | 1,009,278 | 1,110,206 | 27,182,905 | 29,901,195 |
| 2015 | 977,637 | 1,075,401 | 28,192,183 | 31,011,401 |
| 2016 | 1,418,182 | 1,560,000 | 29,169,820 | 32,086,802 |
| 2017 | 1,519,481 | 1,671,429 | 30,588,002 | 33,646,802 |
| 2018 | 1,722,078 | 1,894,286 | 32,107,482 | 35,318,231 |
| 2019 | 1,924,675 | 2,117,143 | 33,829,560 | 37,212,516 |
| 2020 | 2,127,273 | 2,340,000 | 35,754,236 | 39,329,659 |
| 2021 | 2,329,870 | 2,562,857 | 37,881,508 | 41,669,659 |
| 2022 | 2,532,468 | 2,785,714 | 40,211,378 | 44,232,516 |
| 2023 | 2,735,065 | 3,008,571 | 42,743,846 | 47,018,231 |
| 2024 | 2,836,364 | 3,120,000 | 45,478,911 | 50,026,802 |
| 2025 | 2,836,364 | 3,120,000 | 48,315,275 | 53,146,802 |
| 2026 | 2,836,364 | 3,120,000 | 51,151,638 | 56,266,802 |
| 2027 | 2,836,364 | 3,120,000 | 53,988,002 | 59,386,802 |
| 2028 | 2,836,364 | 3,120,000 | 56,824,365 | 62,506,802 |
| 2029 | 2,836,364 | 3,120,000 | 59,660,729 | 65,626,802 |
| 2030 | 2,836,364 | 3,120,000 | 62,497,093 | 68,746,802 |
| 2031 | 2,836,364 | 3,120,000 | 65,333,456 | 71,866,802 |
| 2032 | 2,836,364 | 3,120,000 | 68,169,820 | 74,986,802 |
| 2033 | 2,836,364 | 3,120,000 | 71,006,184 | 78,106,802 |
| 2034 | 2,836,364 | 3,120,000 | 73,842,547 | 81,226,802 |
| 2035 | 2,836,364 | 3,120,000 | 76,678,911 | 84,346,802 |
| 2036 | 2,836,364 | 3,120,000 | 79,515,275 | 87,466,802 |
| 2037 | 2,836,364 | 3,120,000 | 82,351,638 | 90,586,802 |
| 2038 | 2,836,364 | 3,120,000 | 85,188,002 | 93,706,802 |
| 2039 | 1,053,372 | 1,158,710 | 88,024,365 | 96,826,802 |
| 2040 | 0 | 0 | 89,077,738 | 97,985,512 |
| 2041 | 0 | 0 | 89,077,738 | 97,985,512 |
| 2042 | 0 | 0 | 89,077,738 | 97,985,512 |
| 2043 | 0 | 0 | 89,077,738 | 97,985,512 |
| 2044 | 0 | 0 | 89,077,738 | 97,985,512 |
| 2045 | 0 | 0 | 89,077,738 | 97,985,512 |
| 2046 | 0 | 0 | 89,077,738 | 97,985,512 |
| 2047 | 0 | 0 | 89,077,738 | 97,985,512 |
| 2048 | 0 | 0 | 89,077,738 | 97,985,512 |
| 2049 | 0 | 0 | 89,077,738 | 97,985,512 |
| 2050 | 0 | 0 | 89,077,738 | 97,985,512 |
| 2051 | 0 | 0 | 89,077,738 | 97,985,512 |

## Pollutant Parameters

| | | ***Gas / Pollutant Default Parameters:*** | | ***User-specified Pollutant Parameters:*** | |
|---|---|---|---|---|---|
| | Compound | Concentration (*ppmv*) | Molecular Weight | Concentration (*ppmv*) | Molecular Weight |
| **Gases** | Total landfill gas | | 0.00 | | |
| | Methane | | 16.04 | | |
| | Carbon dioxide | | 44.01 | | |
| | NMOC | 4,000 | 86.18 | | |
| **Pollutants** | 1,1,1-Trichloroethane (methyl chloroform) - HAP | 0.48 | 133.41 | | |
| | 1,1,2,2-Tetrachloroethane - HAP/VOC | 1.1 | 167.85 | | |
| | 1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC | 2.4 | 98.97 | | |
| | 1,1-Dichloroethene (vinylidene chloride) - HAP/VOC | 0.20 | 96.94 | | |
| | 1,2-Dichloroethane (ethylene dichloride) - HAP/VOC | 0.41 | 98.96 | | |
| | 1,2-Dichloropropane (propylene dichloride) - HAP/VOC | 0.18 | 112.99 | | |
| | 2-Propanol (isopropyl alcohol) - VOC | 50 | 60.11 | | |
| | Acetone | 7.0 | 58.08 | | |
| | Acrylonitrile - HAP/VOC | 6.3 | 53.06 | | |
| | Benzene - No or Unknown Co-disposal - HAP/VOC | 1.9 | 78.11 | | |
| | Benzene - Co-disposal - HAP/VOC | 11 | 78.11 | | |
| | Bromodichloromethane - VOC | 3.1 | 163.83 | | |
| | Butane - VOC | 5.0 | 58.12 | | |
| | Carbon disulfide - HAP/VOC | 0.58 | 76.13 | | |
| | Carbon monoxide | 140 | 28.01 | | |
| | Carbon tetrachloride - HAP/VOC | 4.0E-03 | 153.84 | | |
| | Carbonyl sulfide - HAP/VOC | 0.49 | 60.07 | | |
| | Chlorobenzene - HAP/VOC | 0.25 | 112.56 | | |
| | Chlorodifluoromethane | 1.3 | 86.47 | | |
| | Chloroethane (ethyl chloride) - HAP/VOC | 1.3 | 64.52 | | |
| | Chloroform - HAP/VOC | 0.03 | 119.39 | | |
| | Chloromethane - VOC | 1.2 | 50.49 | | |
| | Dichlorobenzene - (HAP for para isomer/VOC) | 0.21 | 147 | | |
| | Dichlorodifluoromethane | 16 | 120.91 | | |
| | Dichlorofluoromethane - VOC | 2.6 | 102.92 | | |
| | Dichloromethane (methylene chloride) - HAP | 14 | 84.94 | | |
| | Dimethyl sulfide (methyl sulfide) - VOC | 7.8 | 62.13 | | |
| | Ethane | 890 | 30.07 | | |
| | Ethanol - VOC | 27 | 46.08 | | |

## Pollutant Parameters (Continued)

| | | ***Gas / Pollutant Default Parameters:*** | | ***User-specified Pollutant Parameters:*** | |
|---|---|---|---|---|---|
| | Compound | Concentration (*ppmv*) | Molecular Weight | Concentration (*ppmv*) | Molecular Weight |
| **Pollutants** | Ethyl mercaptan (ethanethiol) - VOC | 2.3 | 62.13 | | |
| | Ethylbenzene - HAP/VOC | 4.6 | 106.16 | | |
| | Ethylene dibromide - HAP/VOC | 1.0E-03 | 187.88 | | |
| | Fluorotrichloromethane - VOC | 0.76 | 137.38 | | |
| | Hexane - HAP/VOC | 6.6 | 86.18 | | |
| | Hydrogen sulfide | 36 | 34.08 | | |
| | Mercury (total) - HAP | 2.9E-04 | 200.61 | | |
| | Methyl ethyl ketone - HAP/VOC | 7.1 | 72.11 | | |
| | Methyl isobutyl ketone - HAP/VOC | 1.9 | 100.16 | | |
| | Methyl mercaptan - VOC | 2.5 | 48.11 | | |
| | Pentane - VOC | 3.3 | 72.15 | | |
| | Perchloroethylene (tetrachloroethylene) - HAP | 3.7 | 165.83 | | |
| | Propane - VOC | 11 | 44.09 | | |
| | t-1,2-Dichloroethene - VOC | 2.8 | 96.94 | | |
| | Toluene - No or Unknown Co-disposal - HAP/VOC | 39 | 92.13 | | |
| | Toluene - Co-disposal - HAP/VOC | 170 | 92.13 | | |
| | Trichloroethylene (trichloroethene) - HAP/VOC | 2.8 | 131.40 | | |
| | Vinyl chloride - HAP/VOC | 7.3 | 62.50 | | |
| | Xylenes - HAP/VOC | 12 | 106.16 | | |
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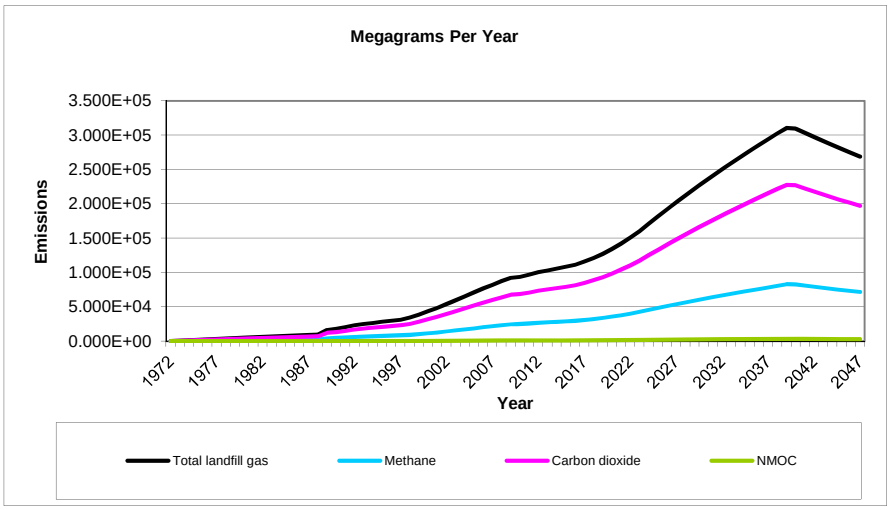
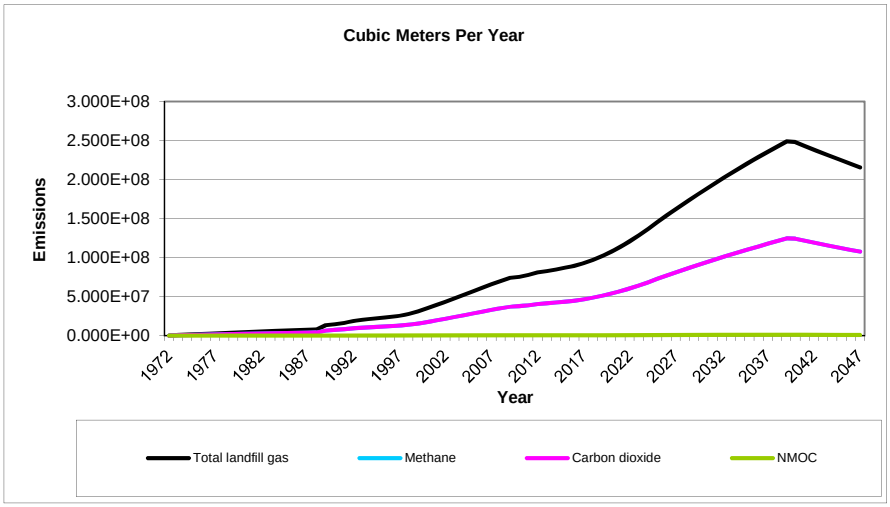
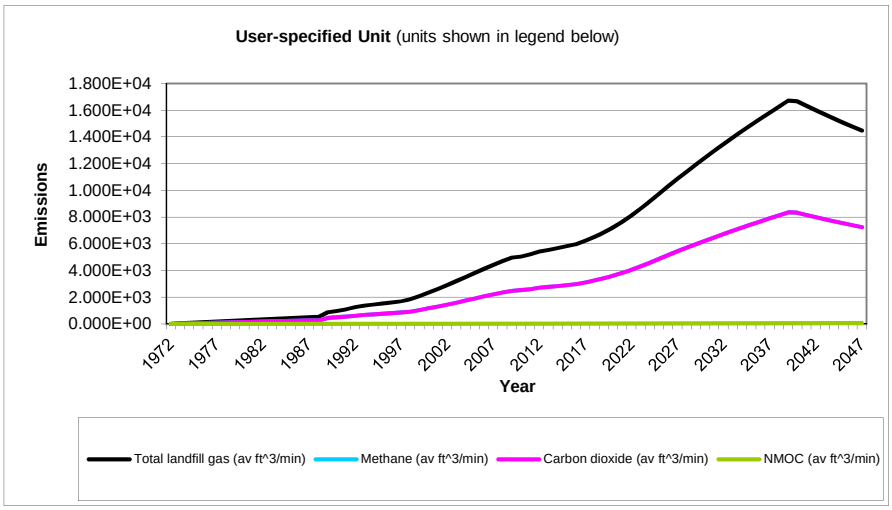
## Graphs


Megagrams Per Year
Emissions
3.500E+05
3.000E+05
2.500E+05
2.000E+05
1.500E+05
1.000E+05
5.000E+04
0.000E+00
1972 1977 1982 1987 1992 1997 2002 2007 2012 2017 2022 2027 2032 2037 2042 2047
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
Emissions
3.000E+08
2.500E+08
2.000E+08
1.500E+08
1.000E+08
5.000E+07
0.000E+00
1972 1977 1982 1987 1992 1997 2002 2007 2012 2017 2022 2027 2032 2037 2042 2047
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
Emissions
1.800E+04
1.600E+04
1.400E+04
1.200E+04
1.000E+04
8.000E+03
6.000E+03
4.000E+03
2.000E+03
0.000E+00
1972 1977 1982 1987 1992 1997 2002 2007 2012 2017 2022 2027 2032 2037 2042 2047
Year
Total landfill gas (av ft^3/min)
Methane (av ft^3/min)
Carbon dioxide (av ft^3/min)
NMOC (av ft^3/min)

## Results

| Year | Total landfill gas | | | Methane | | |
|---|---|---|---|---|---|---|
| | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 6.691E+02 | 5.358E+05 | 3.600E+01 | 1.787E+02 | 2.679E+05 | 1.800E+01 |
| 1974 | 1.325E+03 | 1.061E+06 | 7.129E+01 | 3.539E+02 | 5.305E+05 | 3.564E+01 |
| 1975 | 1.968E+03 | 1.576E+06 | 1.059E+02 | 5.256E+02 | 7.879E+05 | 5.294E+01 |
| 1976 | 2.598E+03 | 2.080E+06 | 1.398E+02 | 6.940E+02 | 1.040E+06 | 6.989E+01 |
| 1977 | 3.216E+03 | 2.575E+06 | 1.730E+02 | 8.590E+02 | 1.287E+06 | 8.651E+01 |
| 1978 | 3.821E+03 | 3.060E+06 | 2.056E+02 | 1.021E+03 | 1.530E+06 | 1.028E+02 |
| 1979 | 4.469E+03 | 3.579E+06 | 2.405E+02 | 1.194E+03 | 1.789E+06 | 1.202E+02 |
| 1980 | 5.104E+03 | 4.087E+06 | 2.746E+02 | 1.363E+03 | 2.044E+06 | 1.373E+02 |
| 1981 | 5.727E+03 | 4.586E+06 | 3.081E+02 | 1.530E+03 | 2.293E+06 | 1.541E+02 |
| 1982 | 6.337E+03 | 5.075E+06 | 3.410E+02 | 1.693E+03 | 2.537E+06 | 1.705E+02 |
| 1983 | 6.935E+03 | 5.554E+06 | 3.731E+02 | 1.853E+03 | 2.777E+06 | 1.866E+02 |
| 1984 | 7.522E+03 | 6.023E+06 | 4.047E+02 | 2.009E+03 | 3.012E+06 | 2.023E+02 |
| 1985 | 8.096E+03 | 6.483E+06 | 4.356E+02 | 2.163E+03 | 3.242E+06 | 2.178E+02 |
| 1986 | 8.660E+03 | 6.934E+06 | 4.659E+02 | 2.313E+03 | 3.467E+06 | 2.330E+02 |
| 1987 | 9.212E+03 | 7.377E+06 | 4.956E+02 | 2.461E+03 | 3.688E+06 | 2.478E+02 |
| 1988 | 9.753E+03 | 7.810E+06 | 5.248E+02 | 2.605E+03 | 3.905E+06 | 2.624E+02 |
| 1989 | 1.658E+04 | 1.328E+07 | 8.920E+02 | 4.428E+03 | 6.638E+06 | 4.460E+02 |
| 1990 | 1.833E+04 | 1.468E+07 | 9.862E+02 | 4.896E+03 | 7.339E+06 | 4.931E+02 |
| 1991 | 2.049E+04 | 1.641E+07 | 1.102E+03 | 5.473E+03 | 8.204E+06 | 5.512E+02 |
| 1992 | 2.335E+04 | 1.870E+07 | 1.256E+03 | 6.238E+03 | 9.350E+06 | 6.282E+02 |
| 1993 | 2.557E+04 | 2.048E+07 | 1.376E+03 | 6.831E+03 | 1.024E+07 | 6.880E+02 |
| 1994 | 2.685E+04 | 2.150E+07 | 1.445E+03 | 7.173E+03 | 1.075E+07 | 7.224E+02 |
| 1995 | 2.869E+04 | 2.298E+07 | 1.544E+03 | 7.664E+03 | 1.149E+07 | 7.719E+02 |
| 1996 | 3.007E+04 | 2.408E+07 | 1.618E+03 | 8.033E+03 | 1.204E+07 | 8.090E+02 |
| 1997 | 3.148E+04 | 2.521E+07 | 1.694E+03 | 8.410E+03 | 1.261E+07 | 8.470E+02 |
| 1998 | 3.445E+04 | 2.758E+07 | 1.853E+03 | 9.201E+03 | 1.379E+07 | 9.266E+02 |
| 1999 | 3.887E+04 | 3.113E+07 | 2.091E+03 | 1.038E+04 | 1.556E+07 | 1.046E+03 |
| 2000 | 4.390E+04 | 3.516E+07 | 2.362E+03 | 1.173E+04 | 1.758E+07 | 1.181E+03 |
| 2001 | 4.875E+04 | 3.904E+07 | 2.623E+03 | 1.302E+04 | 1.952E+07 | 1.311E+03 |
| 2002 | 5.414E+04 | 4.336E+07 | 2.913E+03 | 1.446E+04 | 2.168E+07 | 1.457E+03 |
| 2003 | 5.978E+04 | 4.787E+07 | 3.216E+03 | 1.597E+04 | 2.394E+07 | 1.608E+03 |
| 2004 | 6.554E+04 | 5.248E+07 | 3.526E+03 | 1.751E+04 | 2.624E+07 | 1.763E+03 |
| 2005 | 7.125E+04 | 5.705E+07 | 3.833E+03 | 1.903E+04 | 2.853E+07 | 1.917E+03 |
| 2006 | 7.681E+04 | 6.151E+07 | 4.133E+03 | 2.052E+04 | 3.075E+07 | 2.066E+03 |
| 2007 | 8.222E+04 | 6.584E+07 | 4.423E+03 | 2.196E+04 | 3.292E+07 | 2.212E+03 |
| 2008 | 8.753E+04 | 7.009E+07 | 4.710E+03 | 2.338E+04 | 3.505E+07 | 2.355E+03 |
| 2009 | 9.257E+04 | 7.413E+07 | 4.981E+03 | 2.473E+04 | 3.706E+07 | 2.490E+03 |
| 2010 | 9.383E+04 | 7.514E+07 | 5.049E+03 | 2.506E+04 | 3.757E+07 | 2.524E+03 |
| 2011 | 9.688E+04 | 7.758E+07 | 5.212E+03 | 2.588E+04 | 3.879E+07 | 2.606E+03 |
| 2012 | 1.009E+05 | 8.084E+07 | 5.431E+03 | 2.696E+04 | 4.042E+07 | 2.716E+03 |
| 2013 | 1.031E+05 | 8.258E+07 | 5.548E+03 | 2.755E+04 | 4.129E+07 | 2.774E+03 |
| 2014 | 1.057E+05 | 8.465E+07 | 5.688E+03 | 2.824E+04 | 4.232E+07 | 2.844E+03 |
| 2015 | 1.086E+05 | 8.697E+07 | 5.844E+03 | 2.901E+04 | 4.349E+07 | 2.922E+03 |
| 2016 | 1.113E+05 | 8.913E+07 | 5.989E+03 | 2.973E+04 | 4.456E+07 | 2.994E+03 |
| 2017 | 1.161E+05 | 9.299E+07 | 6.248E+03 | 3.102E+04 | 4.649E+07 | 3.124E+03 |
| 2018 | 1.213E+05 | 9.717E+07 | 6.529E+03 | 3.241E+04 | 4.858E+07 | 3.264E+03 |
| 2019 | 1.275E+05 | 1.021E+08 | 6.858E+03 | 3.405E+04 | 5.104E+07 | 3.429E+03 |
| 2020 | 1.345E+05 | 1.077E+08 | 7.235E+03 | 3.592E+04 | 5.384E+07 | 3.617E+03 |
| 2021 | 1.423E+05 | 1.140E+08 | 7.658E+03 | 3.802E+04 | 5.699E+07 | 3.829E+03 |

## Results (Continued)

| Year | Total landfill gas | | | Methane | | |
|---|---|---|---|---|---|---|
| | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* |
| 2022 | 1.511E+05 | 1.210E+08 | 8.127E+03 | 4.035E+04 | 6.048E+07 | 4.064E+03 |
| 2023 | 1.606E+05 | 1.286E+08 | 8.641E+03 | 4.290E+04 | 6.430E+07 | 4.320E+03 |
| 2024 | 1.710E+05 | 1.369E+08 | 9.198E+03 | 4.567E+04 | 6.845E+07 | 4.599E+03 |
| 2025 | 1.816E+05 | 1.454E+08 | 9.772E+03 | 4.851E+04 | 7.272E+07 | 4.886E+03 |
| 2026 | 1.921E+05 | 1.538E+08 | 1.033E+04 | 5.130E+04 | 7.690E+07 | 5.167E+03 |
| 2027 | 2.023E+05 | 1.620E+08 | 1.088E+04 | 5.404E+04 | 8.100E+07 | 5.442E+03 |
| 2028 | 2.123E+05 | 1.700E+08 | 1.142E+04 | 5.672E+04 | 8.502E+07 | 5.712E+03 |
| 2029 | 2.222E+05 | 1.779E+08 | 1.195E+04 | 5.935E+04 | 8.895E+07 | 5.977E+03 |
| 2030 | 2.318E+05 | 1.856E+08 | 1.247E+04 | 6.192E+04 | 9.281E+07 | 6.236E+03 |
| 2031 | 2.413E+05 | 1.932E+08 | 1.298E+04 | 6.445E+04 | 9.660E+07 | 6.490E+03 |
| 2032 | 2.505E+05 | 2.006E+08 | 1.348E+04 | 6.692E+04 | 1.003E+08 | 6.740E+03 |
| 2033 | 2.596E+05 | 2.079E+08 | 1.397E+04 | 6.935E+04 | 1.039E+08 | 6.984E+03 |
| 2034 | 2.685E+05 | 2.150E+08 | 1.445E+04 | 7.172E+04 | 1.075E+08 | 7.223E+03 |
| 2035 | 2.772E+05 | 2.220E+08 | 1.492E+04 | 7.405E+04 | 1.110E+08 | 7.458E+03 |
| 2036 | 2.858E+05 | 2.288E+08 | 1.538E+04 | 7.634E+04 | 1.144E+08 | 7.688E+03 |
| 2037 | 2.942E+05 | 2.356E+08 | 1.583E+04 | 7.858E+04 | 1.178E+08 | 7.914E+03 |
| 2038 | 3.024E+05 | 2.421E+08 | 1.627E+04 | 8.077E+04 | 1.211E+08 | 8.135E+03 |
| 2039 | 3.104E+05 | 2.486E+08 | 1.670E+04 | 8.292E+04 | 1.243E+08 | 8.351E+03 |
| 2040 | 3.095E+05 | 2.478E+08 | 1.665E+04 | 8.267E+04 | 1.239E+08 | 8.326E+03 |
| 2041 | 3.034E+05 | 2.429E+08 | 1.632E+04 | 8.104E+04 | 1.215E+08 | 8.161E+03 |
| 2042 | 2.974E+05 | 2.381E+08 | 1.600E+04 | 7.943E+04 | 1.191E+08 | 8.000E+03 |
| 2043 | 2.915E+05 | 2.334E+08 | 1.568E+04 | 7.786E+04 | 1.167E+08 | 7.841E+03 |
| 2044 | 2.857E+05 | 2.288E+08 | 1.537E+04 | 7.632E+04 | 1.144E+08 | 7.686E+03 |
| 2045 | 2.801E+05 | 2.243E+08 | 1.507E+04 | 7.481E+04 | 1.121E+08 | 7.534E+03 |
| 2046 | 2.745E+05 | 2.198E+08 | 1.477E+04 | 7.333E+04 | 1.099E+08 | 7.385E+03 |
| 2047 | 2.691E+05 | 2.155E+08 | 1.448E+04 | 7.187E+04 | 1.077E+08 | 7.239E+03 |
| 2048 | 2.638E+05 | 2.112E+08 | 1.419E+04 | 7.045E+04 | 1.056E+08 | 7.095E+03 |
| 2049 | 2.585E+05 | 2.070E+08 | 1.391E+04 | 6.906E+04 | 1.035E+08 | 6.955E+03 |
| 2050 | 2.534E+05 | 2.029E+08 | 1.363E+04 | 6.769E+04 | 1.015E+08 | 6.817E+03 |
| 2051 | 2.484E+05 | 1.989E+08 | 1.336E+04 | 6.635E+04 | 9.945E+07 | 6.682E+03 |
| 2052 | 2.435E+05 | 1.950E+08 | 1.310E+04 | 6.503E+04 | 9.748E+07 | 6.550E+03 |
| 2053 | 2.387E+05 | 1.911E+08 | 1.284E+04 | 6.375E+04 | 9.555E+07 | 6.420E+03 |
| 2054 | 2.339E+05 | 1.873E+08 | 1.259E+04 | 6.248E+04 | 9.366E+07 | 6.293E+03 |
| 2055 | 2.293E+05 | 1.836E+08 | 1.234E+04 | 6.125E+04 | 9.180E+07 | 6.168E+03 |
| 2056 | 2.248E+05 | 1.800E+08 | 1.209E+04 | 6.003E+04 | 8.999E+07 | 6.046E+03 |
| 2057 | 2.203E+05 | 1.764E+08 | 1.185E+04 | 5.885E+04 | 8.820E+07 | 5.926E+03 |
| 2058 | 2.159E+05 | 1.729E+08 | 1.162E+04 | 5.768E+04 | 8.646E+07 | 5.809E+03 |
| 2059 | 2.117E+05 | 1.695E+08 | 1.139E+04 | 5.654E+04 | 8.475E+07 | 5.694E+03 |
| 2060 | 2.075E+05 | 1.661E+08 | 1.116E+04 | 5.542E+04 | 8.307E+07 | 5.581E+03 |
| 2061 | 2.034E+05 | 1.628E+08 | 1.094E+04 | 5.432E+04 | 8.142E+07 | 5.471E+03 |
| 2062 | 1.993E+05 | 1.596E+08 | 1.072E+04 | 5.325E+04 | 7.981E+07 | 5.362E+03 |
| 2063 | 1.954E+05 | 1.565E+08 | 1.051E+04 | 5.219E+04 | 7.823E+07 | 5.256E+03 |
| 2064 | 1.915E+05 | 1.534E+08 | 1.030E+04 | 5.116E+04 | 7.668E+07 | 5.152E+03 |
| 2065 | 1.877E+05 | 1.503E+08 | 1.010E+04 | 5.014E+04 | 7.516E+07 | 5.050E+03 |
| 2066 | 1.840E+05 | 1.473E+08 | 9.900E+03 | 4.915E+04 | 7.367E+07 | 4.950E+03 |
| 2067 | 1.804E+05 | 1.444E+08 | 9.704E+03 | 4.818E+04 | 7.222E+07 | 4.852E+03 |
| 2068 | 1.768E+05 | 1.416E+08 | 9.512E+03 | 4.722E+04 | 7.079E+07 | 4.756E+03 |
| 2069 | 1.733E+05 | 1.388E+08 | 9.324E+03 | 4.629E+04 | 6.938E+07 | 4.662E+03 |
| 2070 | 1.699E+05 | 1.360E+08 | 9.139E+03 | 4.537E+04 | 6.801E+07 | 4.570E+03 |
| 2071 | 1.665E+05 | 1.333E+08 | 8.958E+03 | 4.447E+04 | 6.666E+07 | 4.479E+03 |
| 2072 | 1.632E+05 | 1.307E+08 | 8.781E+03 | 4.359E+04 | 6.534E+07 | 4.390E+03 |

## Results (Continued)

| Year | Total landfill gas | | | Methane | | |
|---|---|---|---|---|---|---|
| | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* |
| 2073 | 1.600E+05 | 1.281E+08 | 8.607E+03 | 4.273E+04 | 6.405E+07 | 4.303E+03 |
| 2074 | 1.568E+05 | 1.256E+08 | 8.437E+03 | 4.188E+04 | 6.278E+07 | 4.218E+03 |
| 2075 | 1.537E+05 | 1.231E+08 | 8.269E+03 | 4.105E+04 | 6.154E+07 | 4.135E+03 |
| 2076 | 1.507E+05 | 1.206E+08 | 8.106E+03 | 4.024E+04 | 6.032E+07 | 4.053E+03 |
| 2077 | 1.477E+05 | 1.183E+08 | 7.945E+03 | 3.945E+04 | 5.913E+07 | 3.973E+03 |
| 2078 | 1.447E+05 | 1.159E+08 | 7.788E+03 | 3.866E+04 | 5.795E+07 | 3.894E+03 |
| 2079 | 1.419E+05 | 1.136E+08 | 7.634E+03 | 3.790E+04 | 5.681E+07 | 3.817E+03 |
| 2080 | 1.391E+05 | 1.114E+08 | 7.483E+03 | 3.715E+04 | 5.568E+07 | 3.741E+03 |
| 2081 | 1.363E+05 | 1.092E+08 | 7.334E+03 | 3.641E+04 | 5.458E+07 | 3.667E+03 |
| 2082 | 1.336E+05 | 1.070E+08 | 7.189E+03 | 3.569E+04 | 5.350E+07 | 3.595E+03 |
| 2083 | 1.310E+05 | 1.049E+08 | 7.047E+03 | 3.498E+04 | 5.244E+07 | 3.523E+03 |
| 2084 | 1.284E+05 | 1.028E+08 | 6.907E+03 | 3.429E+04 | 5.140E+07 | 3.454E+03 |
| 2085 | 1.258E+05 | 1.008E+08 | 6.770E+03 | 3.361E+04 | 5.038E+07 | 3.385E+03 |
| 2086 | 1.233E+05 | 9.877E+07 | 6.636E+03 | 3.295E+04 | 4.939E+07 | 3.318E+03 |
| 2087 | 1.209E+05 | 9.681E+07 | 6.505E+03 | 3.229E+04 | 4.841E+07 | 3.252E+03 |
| 2088 | 1.185E+05 | 9.490E+07 | 6.376E+03 | 3.166E+04 | 4.745E+07 | 3.188E+03 |
| 2089 | 1.162E+05 | 9.302E+07 | 6.250E+03 | 3.103E+04 | 4.651E+07 | 3.125E+03 |
| 2090 | 1.139E+05 | 9.118E+07 | 6.126E+03 | 3.041E+04 | 4.559E+07 | 3.063E+03 |
| 2091 | 1.116E+05 | 8.937E+07 | 6.005E+03 | 2.981E+04 | 4.469E+07 | 3.002E+03 |
| 2092 | 1.094E+05 | 8.760E+07 | 5.886E+03 | 2.922E+04 | 4.380E+07 | 2.943E+03 |
| 2093 | 1.072E+05 | 8.587E+07 | 5.769E+03 | 2.864E+04 | 4.293E+07 | 2.885E+03 |
| 2094 | 1.051E+05 | 8.417E+07 | 5.655E+03 | 2.808E+04 | 4.208E+07 | 2.828E+03 |
| 2095 | 1.030E+05 | 8.250E+07 | 5.543E+03 | 2.752E+04 | 4.125E+07 | 2.772E+03 |
| 2096 | 1.010E+05 | 8.087E+07 | 5.433E+03 | 2.698E+04 | 4.043E+07 | 2.717E+03 |
| 2097 | 9.899E+04 | 7.927E+07 | 5.326E+03 | 2.644E+04 | 3.963E+07 | 2.663E+03 |
| 2098 | 9.703E+04 | 7.770E+07 | 5.220E+03 | 2.592E+04 | 3.885E+07 | 2.610E+03 |
| 2099 | 9.511E+04 | 7.616E+07 | 5.117E+03 | 2.540E+04 | 3.808E+07 | 2.559E+03 |
| 2100 | 9.322E+04 | 7.465E+07 | 5.016E+03 | 2.490E+04 | 3.732E+07 | 2.508E+03 |
| 2101 | 9.138E+04 | 7.317E+07 | 4.916E+03 | 2.441E+04 | 3.659E+07 | 2.458E+03 |
| 2102 | 8.957E+04 | 7.172E+07 | 4.819E+03 | 2.392E+04 | 3.586E+07 | 2.410E+03 |
| 2103 | 8.779E+04 | 7.030E+07 | 4.724E+03 | 2.345E+04 | 3.515E+07 | 2.362E+03 |
| 2104 | 8.606E+04 | 6.891E+07 | 4.630E+03 | 2.299E+04 | 3.446E+07 | 2.315E+03 |
| 2105 | 8.435E+04 | 6.755E+07 | 4.538E+03 | 2.253E+04 | 3.377E+07 | 2.269E+03 |
| 2106 | 8.268E+04 | 6.621E+07 | 4.449E+03 | 2.209E+04 | 3.310E+07 | 2.224E+03 |
| 2107 | 8.104E+04 | 6.490E+07 | 4.360E+03 | 2.165E+04 | 3.245E+07 | 2.180E+03 |
| 2108 | 7.944E+04 | 6.361E+07 | 4.274E+03 | 2.122E+04 | 3.181E+07 | 2.137E+03 |
| 2109 | 7.787E+04 | 6.235E+07 | 4.189E+03 | 2.080E+04 | 3.118E+07 | 2.095E+03 |
| 2110 | 7.633E+04 | 6.112E+07 | 4.106E+03 | 2.039E+04 | 3.056E+07 | 2.053E+03 |
| 2111 | 7.481E+04 | 5.991E+07 | 4.025E+03 | 1.998E+04 | 2.995E+07 | 2.013E+03 |
| 2112 | 7.333E+04 | 5.872E+07 | 3.945E+03 | 1.959E+04 | 2.936E+07 | 1.973E+03 |

## Results (Continued)

| Year | Carbon dioxide | | | NMOC | | |
|---|---|---|---|---|---|---|
| | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* |
| 1972 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1973 | 4.904E+02 | 2.679E+05 | 1.800E+01 | 7.682E+00 | 2.143E+03 | 1.440E-01 |
| 1974 | 9.711E+02 | 5.305E+05 | 3.564E+01 | 1.521E+01 | 4.244E+03 | 2.852E-01 |
| 1975 | 1.442E+03 | 7.879E+05 | 5.294E+01 | 2.259E+01 | 6.303E+03 | 4.235E-01 |
| 1976 | 1.904E+03 | 1.040E+06 | 6.989E+01 | 2.983E+01 | 8.322E+03 | 5.591E-01 |
| 1977 | 2.357E+03 | 1.287E+06 | 8.651E+01 | 3.692E+01 | 1.030E+04 | 6.921E-01 |
| 1978 | 2.800E+03 | 1.530E+06 | 1.028E+02 | 4.387E+01 | 1.224E+04 | 8.224E-01 |
| 1979 | 3.275E+03 | 1.789E+06 | 1.202E+02 | 5.131E+01 | 1.431E+04 | 9.618E-01 |
| 1980 | 3.741E+03 | 2.044E+06 | 1.373E+02 | 5.860E+01 | 1.635E+04 | 1.099E+00 |
| 1981 | 4.197E+03 | 2.293E+06 | 1.541E+02 | 6.575E+01 | 1.834E+04 | 1.232E+00 |
| 1982 | 4.644E+03 | 2.537E+06 | 1.705E+02 | 7.276E+01 | 2.030E+04 | 1.364E+00 |
| 1983 | 5.083E+03 | 2.777E+06 | 1.866E+02 | 7.963E+01 | 2.221E+04 | 1.493E+00 |
| 1984 | 5.513E+03 | 3.012E+06 | 2.023E+02 | 8.636E+01 | 2.409E+04 | 1.619E+00 |
| 1985 | 5.934E+03 | 3.242E+06 | 2.178E+02 | 9.296E+01 | 2.593E+04 | 1.742E+00 |
| 1986 | 6.347E+03 | 3.467E+06 | 2.330E+02 | 9.942E+01 | 2.774E+04 | 1.864E+00 |
| 1987 | 6.751E+03 | 3.688E+06 | 2.478E+02 | 1.058E+02 | 2.951E+04 | 1.983E+00 |
| 1988 | 7.148E+03 | 3.905E+06 | 2.624E+02 | 1.120E+02 | 3.124E+04 | 2.099E+00 |
| 1989 | 1.215E+04 | 6.638E+06 | 4.460E+02 | 1.903E+02 | 5.310E+04 | 3.568E+00 |
| 1990 | 1.343E+04 | 7.339E+06 | 4.931E+02 | 2.105E+02 | 5.871E+04 | 3.945E+00 |
| 1991 | 1.502E+04 | 8.204E+06 | 5.512E+02 | 2.353E+02 | 6.563E+04 | 4.410E+00 |
| 1992 | 1.711E+04 | 9.350E+06 | 6.282E+02 | 2.681E+02 | 7.480E+04 | 5.026E+00 |
| 1993 | 1.874E+04 | 1.024E+07 | 6.880E+02 | 2.936E+02 | 8.191E+04 | 5.504E+00 |
| 1994 | 1.968E+04 | 1.075E+07 | 7.224E+02 | 3.083E+02 | 8.601E+04 | 5.779E+00 |
| 1995 | 2.103E+04 | 1.149E+07 | 7.719E+02 | 3.294E+02 | 9.190E+04 | 6.175E+00 |
| 1996 | 2.204E+04 | 1.204E+07 | 8.090E+02 | 3.453E+02 | 9.633E+04 | 6.472E+00 |
| 1997 | 2.307E+04 | 1.261E+07 | 8.470E+02 | 3.615E+02 | 1.008E+05 | 6.776E+00 |
| 1998 | 2.524E+04 | 1.379E+07 | 9.266E+02 | 3.955E+02 | 1.103E+05 | 7.413E+00 |
| 1999 | 2.849E+04 | 1.556E+07 | 1.046E+03 | 4.463E+02 | 1.245E+05 | 8.365E+00 |
| 2000 | 3.218E+04 | 1.758E+07 | 1.181E+03 | 5.041E+02 | 1.406E+05 | 9.448E+00 |
| 2001 | 3.573E+04 | 1.952E+07 | 1.311E+03 | 5.597E+02 | 1.561E+05 | 1.049E+01 |
| 2002 | 3.968E+04 | 2.168E+07 | 1.457E+03 | 6.216E+02 | 1.734E+05 | 1.165E+01 |
| 2003 | 4.381E+04 | 2.394E+07 | 1.608E+03 | 6.864E+02 | 1.915E+05 | 1.287E+01 |
| 2004 | 4.803E+04 | 2.624E+07 | 1.763E+03 | 7.524E+02 | 2.099E+05 | 1.410E+01 |
| 2005 | 5.222E+04 | 2.853E+07 | 1.917E+03 | 8.180E+02 | 2.282E+05 | 1.533E+01 |
| 2006 | 5.629E+04 | 3.075E+07 | 2.066E+03 | 8.819E+02 | 2.460E+05 | 1.653E+01 |
| 2007 | 6.026E+04 | 3.292E+07 | 2.212E+03 | 9.439E+02 | 2.633E+05 | 1.769E+01 |
| 2008 | 6.415E+04 | 3.505E+07 | 2.355E+03 | 1.005E+03 | 2.804E+05 | 1.884E+01 |
| 2009 | 6.785E+04 | 3.706E+07 | 2.490E+03 | 1.063E+03 | 2.965E+05 | 1.992E+01 |
| 2010 | 6.877E+04 | 3.757E+07 | 2.524E+03 | 1.077E+03 | 3.006E+05 | 2.019E+01 |
| 2011 | 7.100E+04 | 3.879E+07 | 2.606E+03 | 1.112E+03 | 3.103E+05 | 2.085E+01 |
| 2012 | 7.399E+04 | 4.042E+07 | 2.716E+03 | 1.159E+03 | 3.233E+05 | 2.173E+01 |
| 2013 | 7.558E+04 | 4.129E+07 | 2.774E+03 | 1.184E+03 | 3.303E+05 | 2.219E+01 |
| 2014 | 7.748E+04 | 4.232E+07 | 2.844E+03 | 1.214E+03 | 3.386E+05 | 2.275E+01 |
| 2015 | 7.960E+04 | 4.349E+07 | 2.922E+03 | 1.247E+03 | 3.479E+05 | 2.338E+01 |
| 2016 | 8.157E+04 | 4.456E+07 | 2.994E+03 | 1.278E+03 | 3.565E+05 | 2.395E+01 |
| 2017 | 8.510E+04 | 4.649E+07 | 3.124E+03 | 1.333E+03 | 3.719E+05 | 2.499E+01 |
| 2018 | 8.893E+04 | 4.858E+07 | 3.264E+03 | 1.393E+03 | 3.887E+05 | 2.611E+01 |
| 2019 | 9.342E+04 | 5.104E+07 | 3.429E+03 | 1.463E+03 | 4.083E+05 | 2.743E+01 |
| 2020 | 9.855E+04 | 5.384E+07 | 3.617E+03 | 1.544E+03 | 4.307E+05 | 2.894E+01 |
| 2021 | 1.043E+05 | 5.699E+07 | 3.829E+03 | 1.634E+03 | 4.559E+05 | 3.063E+01 |

## Results (Continued)

| Year | Carbon dioxide | | | NMOC | | |
|---|---|---|---|---|---|---|
| | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* |
| 2022 | 1.107E+05 | 6.048E+07 | 4.064E+03 | 1.734E+03 | 4.838E+05 | 3.251E+01 |
| 2023 | 1.177E+05 | 6.430E+07 | 4.320E+03 | 1.844E+03 | 5.144E+05 | 3.456E+01 |
| 2024 | 1.253E+05 | 6.845E+07 | 4.599E+03 | 1.963E+03 | 5.476E+05 | 3.679E+01 |
| 2025 | 1.331E+05 | 7.272E+07 | 4.886E+03 | 2.085E+03 | 5.817E+05 | 3.909E+01 |
| 2026 | 1.408E+05 | 7.690E+07 | 5.167E+03 | 2.205E+03 | 6.152E+05 | 4.133E+01 |
| 2027 | 1.483E+05 | 8.100E+07 | 5.442E+03 | 2.323E+03 | 6.480E+05 | 4.354E+01 |
| 2028 | 1.556E+05 | 8.502E+07 | 5.712E+03 | 2.438E+03 | 6.801E+05 | 4.570E+01 |
| 2029 | 1.628E+05 | 8.895E+07 | 5.977E+03 | 2.551E+03 | 7.116E+05 | 4.781E+01 |
| 2030 | 1.699E+05 | 9.281E+07 | 6.236E+03 | 2.662E+03 | 7.425E+05 | 4.989E+01 |
| 2031 | 1.768E+05 | 9.660E+07 | 6.490E+03 | 2.770E+03 | 7.728E+05 | 5.192E+01 |
| 2032 | 1.836E+05 | 1.003E+08 | 6.740E+03 | 2.876E+03 | 8.025E+05 | 5.392E+01 |
| 2033 | 1.903E+05 | 1.039E+08 | 6.984E+03 | 2.981E+03 | 8.316E+05 | 5.587E+01 |
| 2034 | 1.968E+05 | 1.075E+08 | 7.223E+03 | 3.083E+03 | 8.601E+05 | 5.779E+01 |
| 2035 | 2.032E+05 | 1.110E+08 | 7.458E+03 | 3.183E+03 | 8.880E+05 | 5.967E+01 |
| 2036 | 2.095E+05 | 1.144E+08 | 7.688E+03 | 3.281E+03 | 9.154E+05 | 6.151E+01 |
| 2037 | 2.156E+05 | 1.178E+08 | 7.914E+03 | 3.377E+03 | 9.422E+05 | 6.331E+01 |
| 2038 | 2.216E+05 | 1.211E+08 | 8.135E+03 | 3.472E+03 | 9.686E+05 | 6.508E+01 |
| 2039 | 2.275E+05 | 1.243E+08 | 8.351E+03 | 3.564E+03 | 9.944E+05 | 6.681E+01 |
| 2040 | 2.268E+05 | 1.239E+08 | 8.326E+03 | 3.554E+03 | 9.914E+05 | 6.661E+01 |
| 2041 | 2.223E+05 | 1.215E+08 | 8.161E+03 | 3.483E+03 | 9.717E+05 | 6.529E+01 |
| 2042 | 2.179E+05 | 1.191E+08 | 8.000E+03 | 3.414E+03 | 9.525E+05 | 6.400E+01 |
| 2043 | 2.136E+05 | 1.167E+08 | 7.841E+03 | 3.347E+03 | 9.336E+05 | 6.273E+01 |
| 2044 | 2.094E+05 | 1.144E+08 | 7.686E+03 | 3.280E+03 | 9.152E+05 | 6.149E+01 |
| 2045 | 2.053E+05 | 1.121E+08 | 7.534E+03 | 3.215E+03 | 8.970E+05 | 6.027E+01 |
| 2046 | 2.012E+05 | 1.099E+08 | 7.385E+03 | 3.152E+03 | 8.793E+05 | 5.908E+01 |
| 2047 | 1.972E+05 | 1.077E+08 | 7.239E+03 | 3.089E+03 | 8.619E+05 | 5.791E+01 |
| 2048 | 1.933E+05 | 1.056E+08 | 7.095E+03 | 3.028E+03 | 8.448E+05 | 5.676E+01 |
| 2049 | 1.895E+05 | 1.035E+08 | 6.955E+03 | 2.968E+03 | 8.281E+05 | 5.564E+01 |
| 2050 | 1.857E+05 | 1.015E+08 | 6.817E+03 | 2.909E+03 | 8.117E+05 | 5.454E+01 |
| 2051 | 1.820E+05 | 9.945E+07 | 6.682E+03 | 2.852E+03 | 7.956E+05 | 5.346E+01 |
| 2052 | 1.784E+05 | 9.748E+07 | 6.550E+03 | 2.795E+03 | 7.798E+05 | 5.240E+01 |
| 2053 | 1.749E+05 | 9.555E+07 | 6.420E+03 | 2.740E+03 | 7.644E+05 | 5.136E+01 |
| 2054 | 1.714E+05 | 9.366E+07 | 6.293E+03 | 2.686E+03 | 7.493E+05 | 5.034E+01 |
| 2055 | 1.680E+05 | 9.180E+07 | 6.168E+03 | 2.633E+03 | 7.344E+05 | 4.935E+01 |
| 2056 | 1.647E+05 | 8.999E+07 | 6.046E+03 | 2.580E+03 | 7.199E+05 | 4.837E+01 |
| 2057 | 1.615E+05 | 8.820E+07 | 5.926E+03 | 2.529E+03 | 7.056E+05 | 4.741E+01 |
| 2058 | 1.583E+05 | 8.646E+07 | 5.809E+03 | 2.479E+03 | 6.917E+05 | 4.647E+01 |
| 2059 | 1.551E+05 | 8.475E+07 | 5.694E+03 | 2.430E+03 | 6.780E+05 | 4.555E+01 |
| 2060 | 1.521E+05 | 8.307E+07 | 5.581E+03 | 2.382E+03 | 6.645E+05 | 4.465E+01 |
| 2061 | 1.490E+05 | 8.142E+07 | 5.471E+03 | 2.335E+03 | 6.514E+05 | 4.377E+01 |
| 2062 | 1.461E+05 | 7.981E+07 | 5.362E+03 | 2.289E+03 | 6.385E+05 | 4.290E+01 |
| 2063 | 1.432E+05 | 7.823E+07 | 5.256E+03 | 2.243E+03 | 6.258E+05 | 4.205E+01 |
| 2064 | 1.404E+05 | 7.668E+07 | 5.152E+03 | 2.199E+03 | 6.134E+05 | 4.122E+01 |
| 2065 | 1.376E+05 | 7.516E+07 | 5.050E+03 | 2.155E+03 | 6.013E+05 | 4.040E+01 |
| 2066 | 1.349E+05 | 7.367E+07 | 4.950E+03 | 2.113E+03 | 5.894E+05 | 3.960E+01 |
| 2067 | 1.322E+05 | 7.222E+07 | 4.852E+03 | 2.071E+03 | 5.777E+05 | 3.882E+01 |
| 2068 | 1.296E+05 | 7.079E+07 | 4.756E+03 | 2.030E+03 | 5.663E+05 | 3.805E+01 |
| 2069 | 1.270E+05 | 6.938E+07 | 4.662E+03 | 1.990E+03 | 5.551E+05 | 3.730E+01 |
| 2070 | 1.245E+05 | 6.801E+07 | 4.570E+03 | 1.950E+03 | 5.441E+05 | 3.656E+01 |
| 2071 | 1.220E+05 | 6.666E+07 | 4.479E+03 | 1.912E+03 | 5.333E+05 | 3.583E+01 |
| 2072 | 1.196E+05 | 6.534E+07 | 4.390E+03 | 1.874E+03 | 5.227E+05 | 3.512E+01 |

## Results (Continued)

| Year | Carbon dioxide | | | NMOC | | |
|---|---|---|---|---|---|---|
| | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* | *(Mg/year)* | *($m^3$/year)* | *(av ft^3/min)* |
| 2073 | 1.172E+05 | 6.405E+07 | 4.303E+03 | 1.837E+03 | 5.124E+05 | 3.443E+01 |
| 2074 | 1.149E+05 | 6.278E+07 | 4.218E+03 | 1.800E+03 | 5.022E+05 | 3.375E+01 |
| 2075 | 1.126E+05 | 6.154E+07 | 4.135E+03 | 1.765E+03 | 4.923E+05 | 3.308E+01 |
| 2076 | 1.104E+05 | 6.032E+07 | 4.053E+03 | 1.730E+03 | 4.826E+05 | 3.242E+01 |
| 2077 | 1.082E+05 | 5.913E+07 | 3.973E+03 | 1.695E+03 | 4.730E+05 | 3.178E+01 |
| 2078 | 1.061E+05 | 5.795E+07 | 3.894E+03 | 1.662E+03 | 4.636E+05 | 3.115E+01 |
| 2079 | 1.040E+05 | 5.681E+07 | 3.817E+03 | 1.629E+03 | 4.545E+05 | 3.053E+01 |
| 2080 | 1.019E+05 | 5.568E+07 | 3.741E+03 | 1.597E+03 | 4.455E+05 | 2.993E+01 |
| 2081 | 9.991E+04 | 5.458E+07 | 3.667E+03 | 1.565E+03 | 4.366E+05 | 2.934E+01 |
| 2082 | 9.793E+04 | 5.350E+07 | 3.595E+03 | 1.534E+03 | 4.280E+05 | 2.876E+01 |
| 2083 | 9.599E+04 | 5.244E+07 | 3.523E+03 | 1.504E+03 | 4.195E+05 | 2.819E+01 |
| 2084 | 9.409E+04 | 5.140E+07 | 3.454E+03 | 1.474E+03 | 4.112E+05 | 2.763E+01 |
| 2085 | 9.223E+04 | 5.038E+07 | 3.385E+03 | 1.445E+03 | 4.031E+05 | 2.708E+01 |
| 2086 | 9.040E+04 | 4.939E+07 | 3.318E+03 | 1.416E+03 | 3.951E+05 | 2.655E+01 |
| 2087 | 8.861E+04 | 4.841E+07 | 3.252E+03 | 1.388E+03 | 3.873E+05 | 2.602E+01 |
| 2088 | 8.686E+04 | 4.745E+07 | 3.188E+03 | 1.361E+03 | 3.796E+05 | 2.550E+01 |
| 2089 | 8.514E+04 | 4.651E+07 | 3.125E+03 | 1.334E+03 | 3.721E+05 | 2.500E+01 |
| 2090 | 8.345E+04 | 4.559E+07 | 3.063E+03 | 1.307E+03 | 3.647E+05 | 2.450E+01 |
| 2091 | 8.180E+04 | 4.469E+07 | 3.002E+03 | 1.281E+03 | 3.575E+05 | 2.402E+01 |
| 2092 | 8.018E+04 | 4.380E+07 | 2.943E+03 | 1.256E+03 | 3.504E+05 | 2.354E+01 |
| 2093 | 7.859E+04 | 4.293E+07 | 2.885E+03 | 1.231E+03 | 3.435E+05 | 2.308E+01 |
| 2094 | 7.703E+04 | 4.208E+07 | 2.828E+03 | 1.207E+03 | 3.367E+05 | 2.262E+01 |
| 2095 | 7.551E+04 | 4.125E+07 | 2.772E+03 | 1.183E+03 | 3.300E+05 | 2.217E+01 |
| 2096 | 7.401E+04 | 4.043E+07 | 2.717E+03 | 1.159E+03 | 3.235E+05 | 2.173E+01 |
| 2097 | 7.255E+04 | 3.963E+07 | 2.663E+03 | 1.136E+03 | 3.171E+05 | 2.130E+01 |
| 2098 | 7.111E+04 | 3.885E+07 | 2.610E+03 | 1.114E+03 | 3.108E+05 | 2.088E+01 |
| 2099 | 6.970E+04 | 3.808E+07 | 2.559E+03 | 1.092E+03 | 3.046E+05 | 2.047E+01 |
| 2100 | 6.832E+04 | 3.732E+07 | 2.508E+03 | 1.070E+03 | 2.986E+05 | 2.006E+01 |
| 2101 | 6.697E+04 | 3.659E+07 | 2.458E+03 | 1.049E+03 | 2.927E+05 | 1.967E+01 |
| 2102 | 6.564E+04 | 3.586E+07 | 2.410E+03 | 1.028E+03 | 2.869E+05 | 1.928E+01 |
| 2103 | 6.434E+04 | 3.515E+07 | 2.362E+03 | 1.008E+03 | 2.812E+05 | 1.889E+01 |
| 2104 | 6.307E+04 | 3.446E+07 | 2.315E+03 | 9.880E+02 | 2.756E+05 | 1.852E+01 |
| 2105 | 6.182E+04 | 3.377E+07 | 2.269E+03 | 9.685E+02 | 2.702E+05 | 1.815E+01 |
| 2106 | 6.060E+04 | 3.310E+07 | 2.224E+03 | 9.493E+02 | 2.648E+05 | 1.779E+01 |
| 2107 | 5.940E+04 | 3.245E+07 | 2.180E+03 | 9.305E+02 | 2.596E+05 | 1.744E+01 |
| 2108 | 5.822E+04 | 3.181E+07 | 2.137E+03 | 9.121E+02 | 2.544E+05 | 1.710E+01 |
| 2109 | 5.707E+04 | 3.118E+07 | 2.095E+03 | 8.940E+02 | 2.494E+05 | 1.676E+01 |
| 2110 | 5.594E+04 | 3.056E+07 | 2.053E+03 | 8.763E+02 | 2.445E+05 | 1.643E+01 |
| 2111 | 5.483E+04 | 2.995E+07 | 2.013E+03 | 8.589E+02 | 2.396E+05 | 1.610E+01 |
| 2112 | 5.374E+04 | 2.936E+07 | 1.973E+03 | 8.419E+02 | 2.349E+05 | 1.578E+01 |

# CHIQUITA CANYON LANDFILL
# ODOR SURVEY REPORT

**Prepared for:**

Mike Dean
Chiquita Canyon Sanitary Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

**Prepared by:**

Soil / Water / Air Protection Enterprise
2656 29th Street, Suite 201
Santa Monica, CA 90405

## November 24, 2015

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

# CHIQUITA CANYON LANDFILL
# ODOR SURVEY REPORT

***Odor Sampling Using Nasal Ranger at Chiquita Canyon Landfill, Castaic, CA.***

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

SOIL / WATER / AIR PROTECTION ENTERPRISE
2656 29th Street, Suite 204
Santa Monica, California 90405
Attn: Paul Rosenfeld, Ph.D.
Tel: (310) 452-5555
Fax: (310) 452-5550
Email: prosenfeld@swape.com

November 24, 2015

Mike Dean
Chiquita Canyon Sanitary Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

Subject: Report of Chiquita Canyon Landfill Odor Survey

Dear Mr. Dean:

Soil Water Air Protection Enterprise is pleased to present you with the enclosed Chiquita Canyon Landfill Odor Survey Report. If you should have any questions regarding the above, please call me at (310) 795-2335.

Very truly yours,

Paul E. Rosenfeld, Ph.D.

# EXECUTIVE SUMMARY

SWAPE conducted an Odor Survey at the Chiquita Canyon Landfill, located at 29201 Henry Mayo Dr, Castaic, CA 91384. SWAPE measured the odors in and around the landfill as well as the Val Verde community. The odor survey was conducted over 25 sampling trips with 3 samplers per trip. 51 locations were sampled each time, subject to accessibility. In total, 3,789 data points were collected. Sampling trips occurred in the morning, when, based on the landfill's historical complaint log and typical expected atmospheric conditions, odors are more likely to be detected.

Locations were selected to give a thorough geographic distribution of sampling points, as well as focusing on receptors such as the Val Verde community. Locations were grouped into 14 location groups inside the landfill and offsite in the surrounding community.

Odors were described using the following methods: (1) Dilution to Threshold values to quantify the strength; (2) Hedonic Tone to quantify the pleasantness; (3) Odor Descriptors to describe the odor; and (4) Suspected Odor Source to describe whether the odor came from the landfill or elsewhere. Analysis of these parameters showed that the landfill working face had the strongest and most unpleasant odors. Offsite, odors were much weaker and were generally neutral in hedonic tone.

Few odors were detected outside of the landfill. Landfill related odors were confirmed only once within the Val Verde community, and were detected on a limited number of occasions at other offsite locations. Even within the landfill itself, trash odors were only detected very close to the working face. Because of the very small amount of landfill related odors detected offsite, based on this study, the landfill does not create significant odor impacts to the surrounding community.

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## LIST OF APPENDICES AND ATTACHMENTS

# 1 INTRODUCTION

## 1.1 PURPOSE AND SCOPE

SWAPE conducted an Odor Survey at the Chiquita Canyon Landfill, located at 29201 Henry Mayo Dr, Castaic, CA 91384. SWAPE measured the odors in and around the landfill as well as the Val Verde Community and surrounding area. The odor survey was conducted over 25 sampling trips with 3 samplers per trip. 50 to 51 locations were sampled each time, for a total of 3,789 data points. Sampling trips occurred in the morning, when odor complaints were believed to be most common based on the landfill complaint log as well as the tendency for odors to accumulate at night during stable conditions before being blown away from the landfill in the morning when heating causes winds to pick up.

The Nasal Ranger produced by St. Croix Sensory was used to determine the strength of odor. Other parameters were recorded as well. A description of sampling methods and locations and analysis methods is included in **Section 2**. The results of sampling are presented in **Section 3**. Conclusions are presented in **Section 4**. Additional graphs and figures are included at the end of the report.

## 1.2 QUALIFICATIONS

I received a B.A. in Environmental Studies from the University of California at Santa Barbara in 1991, an M.S. in Environmental Science from the University of California at Berkeley in 1995, and a Ph.D. in Soil Chemistry from the University of Washington in 1999.

I am a founder and principal environmental consulting scientist at SWAPE. In addition to my education, I have extensive experience in evaluating the fate and transport of environmental contaminants, risk and exposure assessment of contaminants released from pollution sources, and monitoring and modeling of pollution sources that may cause impacts on human health and ecological systems. I use my education, experience, knowledge and expertise to conduct field investigations and prepare risk assessments. I have performed investigation and assessment for both governmental and private entities concerning risks to human health and properties due to contamination from pesticides, polychlorinated biphenyls, petroleum hydrocarbons, polycyclic aromatic hydrocarbons, dioxins/furans, volatile organics, chlorinated solvents, perchlorate, heavy metals, asbestos, perfluorooctanoic acid, and other hazardous substances.

I have extensive experience as an odor expert. For my Doctorate I evaluated biosolids and related odors, and have modeled odors from area sources. I was retained by Sanimax to evaluate odor in a rendering facility. At Republic Waste Services in St. Louis I was retained by the Attorney General to evaluate odor from a landfill that is smoldering and radioactive. I developed the urban odor wheel and authored papers on its applications.

I obtained much of my experience in evaluating contaminated sites while working for the United States Navy. I served as a Remedial Project Manager for the Navy Base Realignment and Closure ("BRAC")

Team, South West Division on Treasure Island, California. While working for BRAC, I managed many sites with environmental contamination concerns, closed a landfill in California on the MCAS Tustin, and evaluated the failure of a test landfill cap in Orote, Guam.

I have taught on the subject of environmental health at the University of California at Los Angeles ("UCLA") for many years. I also regularly attend and speak at professional environmental conferences on various subjects involving environmental contamination and mitigation/remediation.
I have recently co-authored several books concerning environmental contamination and best practices in the chemical industry. These publications include "The Risks of Hazardous Waste" (2011), "Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry" (2011), "Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Wood and Paper Industries" (2010), and "Handbook of Pollution Prevention and Cleaner Production, Best Practices in The Petroleum Industry" (2009). I have also published extensively on other scientific studies of contaminant fate and transport and treatment technologies.

I have testified at deposition and/or at trial as an expert witness on numerous cases involving environmental contamination and exposure assessment and human health risk assessment associated with chemical emissions and odor exposure. My testimony experience is provided in my Curriculum Vitae.

## 1.3 GENERAL LIMITATIONS

This Report and all associated opinions are based on documents and information that was reasonably accessible at the time of investigation. Documents and information include CH2MHill's July 2014 Draft Environmental Impact Report and weather data from Weather Underground. This analysis may be updated if additional documents become available.

# 2 METHODS

## 2.1 SAMPLING LOCATIONS

In order to characterize and understand the various odors in and around the Chiquita Canyon Landfill, 51 representative sampling locations were selected for odor sampling. These locations consisted of 24 locations within the landfill boundary and 27 offsite locations in the communities, industrial areas, and roads surrounding the landfill. These locations were further assigned to location groups. Outside of the landfill, location groups are listed and described below:

- Chiquito Canyon
  - 2 locations along Chiquito Canyon Road
  - West of the landfill
  - Rural/Open/Highway setting with lots of dust and tall grass
- South Val Verde Community
  - 9 locations in the South Val Verde community (referred to as "Val Verde South" in figures and tables)
  - Northwest of landfill, South of Taylor Street and a small mountain ridge
  - Residential setting, few yards, dusty
- North Val Verde Community
  - 5 locations in the North Val Verde community (referred to as "Val Verde North" in figures and tables)
  - Northwest of landfill, North of Taylor Street and a small mountain ridge
  - Residential setting, few yards, dusty
- Del Valle
  - 3 locations on Del Valle Road
  - North of landfill
  - Rural/Open/Highway setting with lots of dust and tall grass
- North Community
  - 2 locations in the community to the Northeast of the landfill
  - Modern tract houses, high density, small grass yards
- Industrial Area
  - 2 locations in industrial area, northeast of landfill
  - Industrial buildings and warehouses, wide paved roads
- Southeast Roads
  - 4 locations near post office, Franklin Road, and Wolcott Road
  - East and southeast of landfill
  - Open/Highway/Industrial setting

Within the landfill, location groups include:

- Landfill Entrance

2 locations near entrance of landfill at South end of landfill
Paved setting, lots of truck traffic

- South Landfill
  3 locations south and southwest of landfill working face
  Paved and dirt roads, grass, trees, hills
- North Landfill Perimeter
  4 locations north of working face, south of mountain range
  Dirt and gravel roads, chaparral, grass, odor control misters
- Northeast Ridgeline
  2 locations on mountain ridges at north end of landfill, overlooking industrial area
  Dirt roads, chaparral, grass
- East Landfill
  4 locations east of working face
  Near mountains, post office and capped landfill sections
  Tall grass, chaparral, dirt and gravel roads
- Southeast Landfill Perimeter
  3 locations southeast of working face on perimeter road
  Close to working face, gravel and paved roads, by landfill gas flare
- The Working Face of the Landfill
  6 locations on or very near working face of landfill
  Dirt and gravel roads, dirt fill, mulch

Locations were selected to provide a broad geographic distribution, while emphasizing receptors, such as the Val Verde community. See **Figure 2.1** and **Appendix A** for maps of sampling locations. The locations are discussed in further detail in **Appendix B**

Odor sampling was conducted on 25 mornings by 3 trained odor specialists. Sampling generally occurred between the hours of 6 a.m. and 10 a.m. when odors have been reported to be the most common. Sampling events took place on Tuesdays, Wednesdays, Thursdays, and Fridays between April 7, 2015 and July 16, 2015. Occasionally, spots had to be skipped because they were inaccessible. Sample location 36, "North Landfill Perimeter," was skipped on the first sampling trip because it was blocked by a large truck. Sample location 47, "Green Waste," was skipped on 11 occasions because no green waste was apparent on the landfill during those sampling occasions. In total, 3,789 data points were collected over the entire survey. The sampling events are discussed in detail in **Appendix C**.

## 2.2 PARAMETERS

Four methods were used to describe the odors at each location:

1. Dilution to threshold values acquired via use of the Nasal Ranger (St. Croix Sensory, St. Croix Minnesota) ranging from 0 to 60+,
2. Hedonic (pleasantness) tone (scale of -10 to +10),
3. Modified Urban Odor Wheel (Rosenfeld et al, 2006) descriptors, and
4. Suspected Odor Source.

### 2.2.1 NASAL RANGER

The Nasal Ranger is a portable odor measuring device. The Nasal Ranger allows the user to test odorous air using six dilution ratios (60, 30, 15, 7, 4, and 2) which correspond to the dilution to threshold (D/T) measurement. For example, an odor detected at 60 D/T means that the odor in the ambient air is detected at a dilution factor of 60, meaning that one part odorous air is detectable when mixed with 60 parts clean, carbon-filtered air. A higher D/T value indicates a more odorous sample. In some instances there are odors which cannot be detected by the Nasal Ranger, but can be detected by the human nose. For these cases, the D/T level is recorded as <2, and assumed to equal 1 for calculation purposes.

### 2.2.2 HEDONIC TONE

The hedonic tone scale, developed by Hatayama (1999) characterizes the pleasantness of an odor. The scale is subjective with -10 being the worst imaginable smell and +10 being the best possible smell in the opinion of the detector. A zero indicates that no odor was detected.

### 2.2.3 ODOR DESCRIPTORS

A modified urban odor wheel was used to describe the odors. The scent was initially recorded and described by the observer, but for the purposes of analysis was then grouped into an odor descriptor category. These odor descriptor categories were obtained from Dr. Rosenfeld's Urban Odor Wheel (2006)[1], but were modified slightly to remove categories that were not detected, and to create more precise categories for certain smells. While hundreds of different smells were recorded, they were grouped into 13 descriptor categories shown in **Table 2.2.3** below.

**Table 2.2.3**

**Odor Descriptors**

| Number | Descriptor Category | Example Descriptors |
|---|---|---|
| **1** | Fragrant/Fruity | Fruity, Citrus, Floral |
| **2** | Parks and Fields/Nature | Grass, Hay, Herbal, Tree |
| **3** | Coffee Shop/Pleasant Flavors | Honey, Berry, Roast, Burnt, Vanilla, Banana |
| **4** | Bakery | Toasted, Bread, Smokey, Malty, Buttery |
| **5** | Dusty/Earthy | Earthy, Dusty, Wet Dirt |
| **6** | Musty/Moldy Compost | Woody, Musty, Moldy, Mulch, Green Waste |
| **7** | Fecal | Fecal, Manure, Sewery |
| **8** | Sulfur/Cabbage/Garlic | Rotten Egg, Rotten Vegetable, Skunk, Garlic, Canned Corn, Cabbage |
| **9** | Fishy/Ammonia | Fishy, Urine, Ammonia |
| **10** | Spoiled Food/Decomposition | Yeasty, Rancid, Sour Milk, Vinegar, Putrid, Decayed, Sour Cheese, Sweaty, Sharp, Sour |
| **11** | Auto Exhaust | Gasoline, Faint and Sharp, Sweet, Exhaust |
| **12** | Cleaning Solvents | Nail Polish, Sweet, Solvent, Cleaner, Air Freshener |
| **13** | Soapy | Soap, Detergent, Shampoo |

[1] Suffet, I.H., Rosenfeld, P., The Anatomy of Odor Wheels for Odors of Drinking Water, Wastewater, Compost, and the Urban Environment, 2007, Water Science & Technology, Vol 55 No 5, pp335-334.

### 2.2.4 SUSPECTED ODOR SOURCES

The source of the odor is useful for its characterization. Since a concern in this project is odors emanating from the landfill traveling offsite, it important to clarify whether an offensive odor was caused by the landfill or some other source. Suspected odor sources were assigned to each odor. Four odor sources were used, including:

1. "Landfill" (emanating from landfill trash, green waste, or odor control mister systems),
2. "Other" (any source that is clearly not the landfill, such as vehicles, grass, or dust),
3. "Unknown" (odors that have characteristics similar to those detected in the landfill, but difficult to describe, such as sour smells, or trash or compost smells with another possible source), and
4. "None" (when no odor was detected).

## 2.3 ANALYSIS

All sampling data was collected in the field and recorded on paper forms, indicating the time, location, D/T, hedonic tone, descriptors, and comments. Weather observations were recorded as well. Sampling forms were then transcribed to a database and corrected for analysis. Odor descriptor categories and suspected odor sources were added at this stage. This allowed a consistent judgment to be made for all the data.

Various forms of statistical analysis were performed to analyze the data. The average D/T and Hedonic Tone values were calculated by taking the arithmetic mean of the three samplers' results for each location and each day. From this the minimum, average, and maximum of these averages was calculated to compare the relative odor levels of each location. These values are depicted in **Figures 3.1a-f** in the figures section and **Table 3.1b** in the results section.

The average D/T and Hedonic Tone values were calculated for each location group for each day as well, in order to determine the most odorous days. This is depicted in **Table 3.1a** in the results section.

Box and whisker plots were created to compare each location group and demonstrate the odor trends of each area. These are shown in the graphs section as **Graphs 3.1a** and **3.1b**. The "box" is composed of the first and third ($25^{th}$ and $75^{th}$ percentile) and median, which are the ends of the box and the vertical line in the interior of the box, respectively. The ends of the lines or "whiskers" are the minimum and maximum values. Values that are considered to fall out of the range of values, called outliers, are depicted by dots that fall outside of the box-and-whisker plot.

Pie charts were created for each location group to show how often certain odor descriptors were detected in each area. Pie charts were also created depicting the relative frequency of odor sources for each location group to understand what types of odors impact each area. These are depicted in **Appendix D**.

# 3 RESULTS

## 3.1 SUMMARY

Offsite, the average dilution to threshold value (measurement of odor intensity) for each location group was less than or equal to 1, with the exception of the Industrial area, which averaged 1.2 D/T. The average hedonic tone (measurement of pleasantness from -10 to +10) ranged between -0.2 and 0.6. The most common odor descriptors were "No Odor" and "Parks and Fields/Nature." Between 0 and 3% of odors were suspected to emanate from the Landfill at offsite location groups, with the exception of the lower Chiquito Canyon Road locations, where 9% of odors were suspected to have originated from the landfill. Additionally, between 2% and 9% of odors were from unknown sources. The lowest hedonic tone (worst smell) associated with any odor in the Val Verde community detected was -5 at the Jackson Gate location. This odor was described as fecal and believed to originate from farming or animal related activities on private property behind the gate.

Odors potentially related to the landfill were detected offsite 34 times out of 2,025 offsite sampling data points, or 1.68% of the time. Out of these 34 data points, 17 were detected through the Nasal Ranger, while the remaining were too faint to detect when diluted. 4 of these 17 Nasal Ranger detections occurred at the Livingston/Watertank sampling location (in the Industrial Area location group), where non-landfill, confounding sources of odor were believed to exist. Accordingly, it is believed that those detections were likely not related to the landfill, however for graphical analysis; the suspected source of "landfill" is retained for these detections. Out of the remaining 13 Nasal Ranger detections, 7 detections occurred at the Chiquito Canyon Road sampling locations, 1 occurred on Del Valle Road, and 5 occurred in the Val Verde community. The lowest hedonic tone associated with landfill odors detected with the Nasal Ranger or nose alone in the Val Verde community was -2, recorded 8 times on 2 dates, July 15 and 16, at 4 Val Verde locations.

Within the landfill, the average D/T values ranged from 0.4 to 2.2, with the exception of the working face, where freshly dumped trash is exposed until buried, which averaged 28.9. The average hedonic tone ranged from -1.1 to 0.7, with the exception of the working face, which averaged -4.0. The most common odor descriptors were "Spoiled Food/ Decomposition," "No Odor," and "Parks and Fields/ Nature." Between only 1% and 2% of odors were suspected to originate from the landfill at the East Landfill and Northeast Ridgeline location groups. Between 35% and 49% of odors were attributed to the landfill at the remaining locations within the landfill, except for the working face, where 96% of odors were caused by the landfill. Between 0 and 4% of odors on the landfill came from unknown sources. See **Tables 3.1a-b** and **Figures 3.1a-f** for more detail.

**Table 3.1a**

**Summary of Sampling Results**

| Landfill or Offsite | Location Group | Average D/T | Average Hedonic Tone | Most Common Descriptor | 2nd Most Common Descriptor | Percent of Odors Attributed to Landfill | Percent of Odors Suspected Unknown Sources |
|---|---|---|---|---|---|---|---|
| Offsite | Chiquito Canyon | 0.8 | -0.2 | No Odor | Parks and Fields/ Nature | 9% | 7% |
| | Val Verde South | 0.8 | -0.1 | No Odor | Parks and Fields/ Nature | 1% | 5% |
| | Val Verde North | 1.0 | 0.2 | Parks and Fields/ Nature | No Odor | 1% | 9% |
| | Del Valle | 0.7 | -0.2 | No Odor | Parks and Fields/ Nature | 1% | 5% |
| | North Community | 0.9 | 0.6 | No Odor | Fragrant/ Fruity | 0% | 2% |
| | Industrial | 1.2 | 0.3 | No Odor | Soapy | 3% | 8% |
| | Southeast Roads | 0.6 | 0.2 | No Odor | Parks and Fields/ Nature | 1% | 5% |
| Landfill | Landfill Entrance | 1.1 | -1.0 | Spoiled Food/ Decomposition | No Odor | 49% | 2% |
| | South Landfill | 1.6 | -0.8 | No Odor | Spoiled Food/ Decomposition | 36% | 4% |
| | Southeast Landfill Perimeter | 2.2 | -1.1 | No Odor | Spoiled Food/ Decomposition | 37% | 0% |
| | North Landfill Perimeter | 1.9 | -0.4 | No Odor | Spoiled Food/ Decomposition | 35% | 0.3% |
| | Northeast Ridgeline | 1.3 | 0.7 | Parks and Fields/ Nature | No Odor | 2% | 3% |
| | East Landfill | 0.4 | 0.2 | No Odor | Parks and Fields/ Nature | 1% | 1% |
| | Working Face | 28.9 | -4.0 | Spoiled Food/ Decomposition | Musty/ Moldy Compost | 96% | 0% |

## Table 3.1b

**Minimum, Average, and Maximum of the Average of Three Samplers' Dilution to Threshold and Hedonic Tone Measurements per Event Over 25 Events**

| | | | Dilution to Threshold | | | Hedonic Tone | | |
|---|---|---|---|---|---|---|---|---|
| Sample Number | Location Name | Location Group | Min of Average D/T | Average D/T | Max of Average D/T | Min of Average Hedonic | Average Hedonic | Max of Average Hedonic |
| 1 | Chiquito Cyn S | Chiquito Canyon | 0.0 | 0.9 | 5.3 | -2.7 | -0.1 | 2.3 |
| 2 | Fire Center Road | Chiquito Canyon | 0.0 | 0.7 | 7.0 | -2.0 | -0.3 | 0.7 |
| 3 | Entrance to Community | Val Verde South | 0.0 | 0.7 | 1.7 | -1.7 | 0.0 | 2.0 |
| 4 | Lincoln Ave South Turn | Val Verde South | 0.0 | 0.7 | 1.0 | -1.3 | 0.1 | 2.0 |
| 5 | Jackson Gate | Val Verde South | 0.0 | 1.9 | 4.3 | -4.0 | -1.8 | 0.3 |
| 6 | Monroe/Lincoln | Val Verde South | 0.0 | 0.8 | 1.7 | -2.0 | 0.1 | 1.7 |
| 7 | Madison/Lincoln | Val Verde South | 0.0 | 0.6 | 1.3 | -2.0 | -0.1 | 2.0 |
| 8 | Taylor/Lincoln | Val Verde South | 0.0 | 0.5 | 1.7 | -1.3 | 0.0 | 1.3 |
| 9 | Harding Lot | Val Verde South | 0.0 | 0.7 | 1.7 | -2.0 | 0.3 | 3.0 |
| 10 | Harding South Turn | Val Verde South | 0.0 | 0.7 | 1.3 | -2.0 | 0.2 | 1.7 |
| 11 | Chiquito Cyn/Madison | Val Verde South | 0.0 | 0.6 | 2.0 | -0.3 | 0.4 | 1.3 |
| 12 | San Martinez/Lincoln | Val Verde North | 0.0 | 0.7 | 1.7 | -1.7 | -0.1 | 1.0 |
| 13 | Chiquito Cyn/Central | Val Verde North | 0.0 | 1.0 | 4.0 | -0.7 | 0.5 | 2.0 |
| 14 | Central East | Val Verde North | 0.0 | 0.7 | 2.3 | -1.7 | 0.0 | 2.0 |
| 15 | Hunstock/Lincoln | Val Verde North | 0.0 | 1.3 | 4.3 | -1.0 | 0.3 | 2.3 |
| 16 | Cromwell/Hunstock | Val Verde North | 0.3 | 1.3 | 4.0 | -1.3 | 0.6 | 3.7 |
| 17 | Del Valle 1 | Del Valle | 0.0 | 0.6 | 2.7 | -2.3 | -0.2 | 1.3 |
| 18 | Del Valle 2 | Del Valle | 0.0 | 0.6 | 4.3 | -1.0 | 0.1 | 1.0 |
| 19 | Del Valle/Halsey Cyn | Del Valle | 0.0 | 0.9 | 3.3 | -2.7 | -0.4 | 3.3 |
| 20 | Liverpool Ct | North Community | 0.0 | 1.4 | 7.0 | -0.7 | 1.5 | 6.0 |
| 21 | Picford Pl | North Community | 0.0 | 0.4 | 2.0 | -3.0 | -0.2 | 1.3 |
| 22 | Industry Drive | Industrial | 0.0 | 1.0 | 2.7 | -2.0 | 0.0 | 1.3 |
| 23 | Livingston/Watertank | Industrial | 0.0 | 1.5 | 5.3 | -3.0 | 0.7 | 4.3 |
| 24 | Post Office | Southeast Roads | 0.0 | 0.9 | 8.7 | -2.0 | 0.2 | 2.0 |
| 25 | Franklin | Southeast Roads | 0.0 | 0.3 | 1.3 | -0.3 | 0.3 | 2.0 |
| 26 | Wolcott Turn | Southeast Roads | 0.0 | 0.5 | 1.7 | -1.0 | 0.2 | 1.0 |
| 27 | Wolcott Light | Southeast Roads | 0.0 | 0.6 | 1.3 | -2.0 | 0.1 | 1.3 |
| 28 | CCLF Entrance | Landfill Entrance | 0.0 | 0.9 | 2.0 | -2.3 | -0.9 | 0.7 |
| 29 | Turnout Tank | Landfill Entrance | 0.0 | 1.4 | 5.3 | -3.3 | -1.0 | 0.3 |
| 30 | White tanks | South Landfill | 0.0 | 1.3 | 5.0 | -4.0 | -1.3 | 0.0 |
| 31 | South Ridgeline Bend | South Landfill | 0.0 | 1.0 | 6.0 | -2.0 | -0.2 | 2.0 |
| 32 | Fire Center Overlook | South Landfill | 0.0 | 2.4 | 17.3 | -4.3 | -1.0 | 1.0 |
| 33 | Perimeter West | Working Face | 1.3 | 23.8 | 60.0 | -7.7 | -3.7 | 0.0 |
| 34 | Odor System | North Landfill Perimeter | 0.0 | 5.3 | 50.0 | -5.0 | -1.1 | 1.3 |
| 35 | Perimeter North | North Landfill Perimeter | 0.0 | 0.9 | 6.0 | -3.3 | -0.6 | 1.3 |
| 36 | Perimeter NNE | North Landfill Perimeter | 0.0 | 1.0 | 5.0 | -1.7 | 0.0 | 1.0 |
| 37 | Perimeter Junc. NE | North Landfill Perimeter | 0.0 | 0.5 | 2.0 | -2.3 | 0.2 | 2.3 |
| 38 | Ridgeline North | Northeast Ridgeline | 0.0 | 1.4 | 11.7 | -0.7 | 0.7 | 3.3 |
| 39 | Ridgeline East | Northeast Ridgeline | 0.3 | 1.2 | 3.3 | -1.7 | 0.7 | 2.7 |
| 40 | Pipe Piles | East Landfill | 0.0 | 0.7 | 1.3 | -1.7 | 0.2 | 1.7 |
| 41 | Concrete Berm | East Landfill | 0.0 | 0.4 | 1.3 | 0.0 | 0.3 | 1.7 |
| 42 | Post Office Overlook | East Landfill | 0.0 | 0.2 | 1.0 | 0.0 | 0.2 | 1.7 |
| 43 | Energy Plant | Southeast Landfill Perimeter | 0.0 | 0.7 | 3.7 | -2.7 | -0.3 | 0.7 |
| 44 | Capped Prim. Cyn LF | East Landfill | 0.0 | 0.3 | 1.3 | -1.0 | 0.1 | 1.0 |
| 45 | Condensate | Southeast Landfill Perimeter | 0.0 | 5.1 | 50.0 | -6.0 | -2.1 | 0.0 |
| 46 | Lot Near Face | Southeast Landfill Perimeter | 0.0 | 1.0 | 7.0 | -3.7 | -0.8 | 0.3 |
| 47 | Green Waste | Working Face | 1.3 | 36.8 | 60.0 | -7.0 | -4.0 | -1.3 |
| 48 | Face 1 | Working Face | 0.0 | 27.4 | 60.0 | -7.3 | -4.0 | 0.0 |
| 49 | Face 2 | Working Face | 1.3 | 22.6 | 60.0 | -7.7 | -3.8 | -1.3 |
| 50 | Face 3 | Working Face | 0.0 | 33.5 | 60.0 | -6.3 | -4.3 | 0.0 |
| 51 | Face 4 | Working Face | 2.0 | 32.7 | 60.0 | -9.0 | -4.5 | 0.3 |

## 3.2 DISCUSSION

Odors were strongest and most offensive within the landfill property, specifically at or near the working face. The most common odors detected within the landfill were smells of grass, sage, and other plants, the sweet air freshener smell of the odor control system, rotten and sour trash odors, and musty mulch odors. Trash odors were only detected within the landfill at locations other than the working face when weather conditions were hot with low or calm winds. However, even during these conditions, trash odors were only rarely detected.

Outside of the landfill, odors (regardless of source) were often not detected. In fact, 40% of offsite sampling data points contained no odors. Odors detected offsite varied, including bakery, sweet flavoring, floral, and soapy smells as well as omnipresent grass and hay smells. Dust was frequently smelled at many locations where dirt or dust was present. Manure odors were frequently detected near one property in the South Val Verde Community at the Jackson Gate location, which are believed to emanate from a farm or barnyard on private property. Sweet and pleasant flavoring type smells like cherry or berry were sometimes detected near the industrial area and North Val Verde locations. A business in the industrial area is believed to be the source of these odors. This explains some of the higher D/T values and hedonic tones reported. Floral odors were detected at several locations such as Chiquito Canyon Road/Central Ave, Liverpool Court, and Livingston Ave/Watertank. At these locations, flowers were observed and were believed to be the source of strong, pleasant floral odors.

Trash odors were very rarely detected outside of the landfill. Trash odors were occasionally smelled in the North community locations (Picford Place and Liverpool Court), but these only were detected on garbage pickup days (Wednesdays) when trash cans were nearby. Trash odors were also occasionally detected in the industrial area at the Livingston Ave/Watertank location, however these were believed to originate from several large dumpsters in the neighboring building's parking lot. On one occasion, strong trash odors were detected at this location, however no trash odors were found upwind, meaning this was likely a localized odor, rather than one coming down from the north landfill ridgeline.

Landfill odors were detected on lower Chiquito Canyon Road through the Nasal Ranger on 4 sampling trips. These locations were the closest offsite locations to the open face of the landfill. While sour or trash-like odors were occasionally, but rarely detected in the Val Verde community, it is difficult to tell if they came from the Landfill, given the amount of natural sour smells, trash cans, and decaying organic material such as leaves and wood within the community. Landfill sourced odors were clearly identifiable in the community on only one occasion, July 15, 2015. The presence of these odors was surprising to the samplers, since no clear landfill odor had been detected in the Val Verde community during the prior 23 sampling trips. The odors on July 15 were similar in description to those smelled on the landfill, but were lower in intensity. While these odors were unpleasant, they did not last more than a few hours, and were not detected only a few hours later that morning.

Additionally, faint trash odors, believed to have possibly originated from the landfill, were detected in the community at Madison/Lincoln and Harding Lot locations during the sampling trip on July 16, 2015. These trash odors were much fainter and more difficult to describe than those on July 15 and could not definitively be attributed to the landfill like those on the previous day; nevertheless "landfill" is retained as their suspected source for graphical analysis.

# 4 CONCLUSION

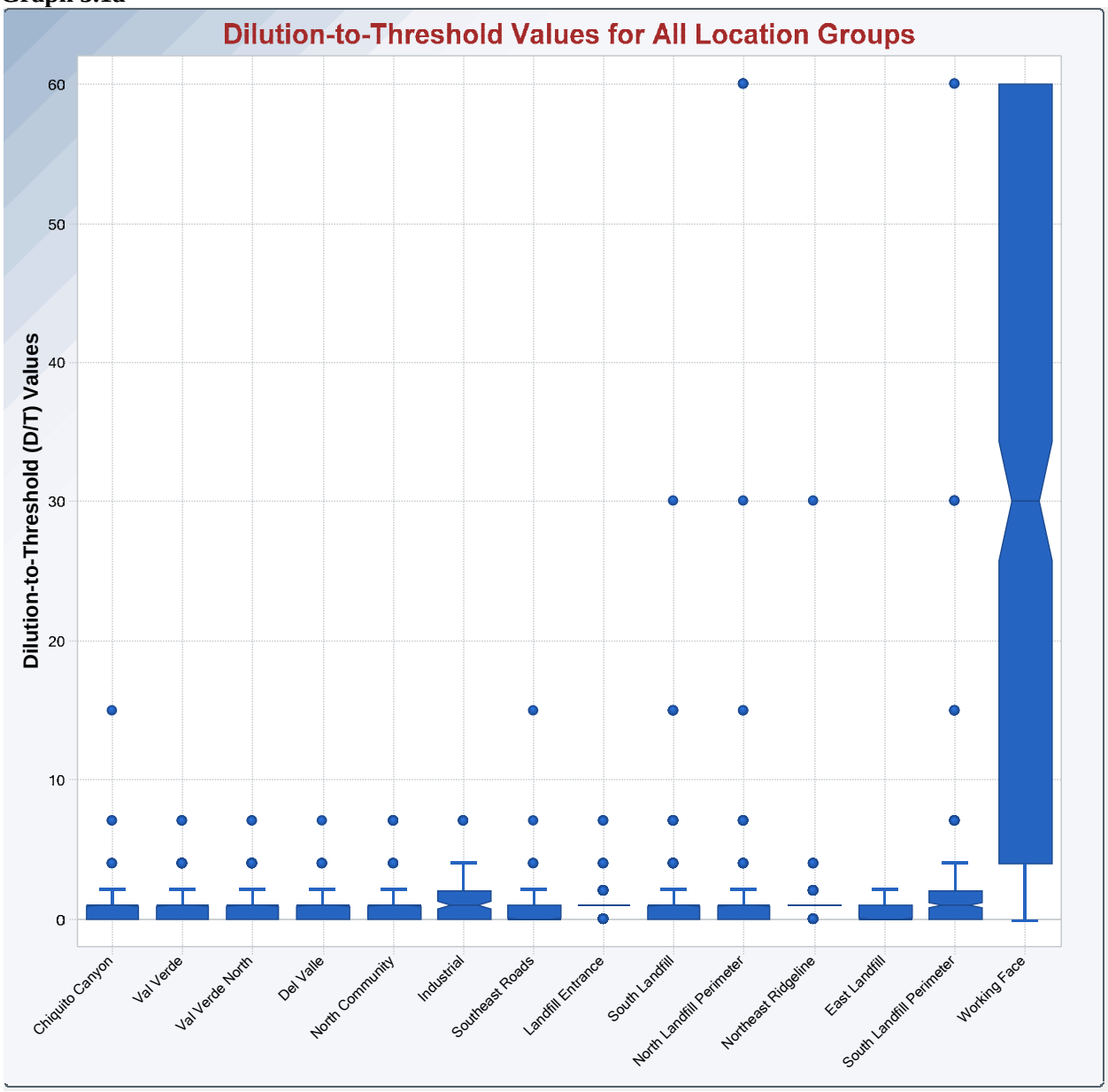
During SWAPE's sampling, very few odors believed to originate from the landfill were detected outside of the landfill boundaries. Landfill related odors were only confirmed once within the Val Verde community. Even within the boundaries of the landfill itself, trash odors were only regularly detected very close to the active working face. Because of the very small amount of landfill related odors detected offsite, it is unlikely that the landfill creates significant odor impacts to the surrounding community.

SWAPE's odor survey supports CH2MHill's conclusion in their 2014 Chiquita Canyon Landfill Master Plan Revision Draft Environmental Impact Report that odor impacts from the landfill are less than significant.[2]

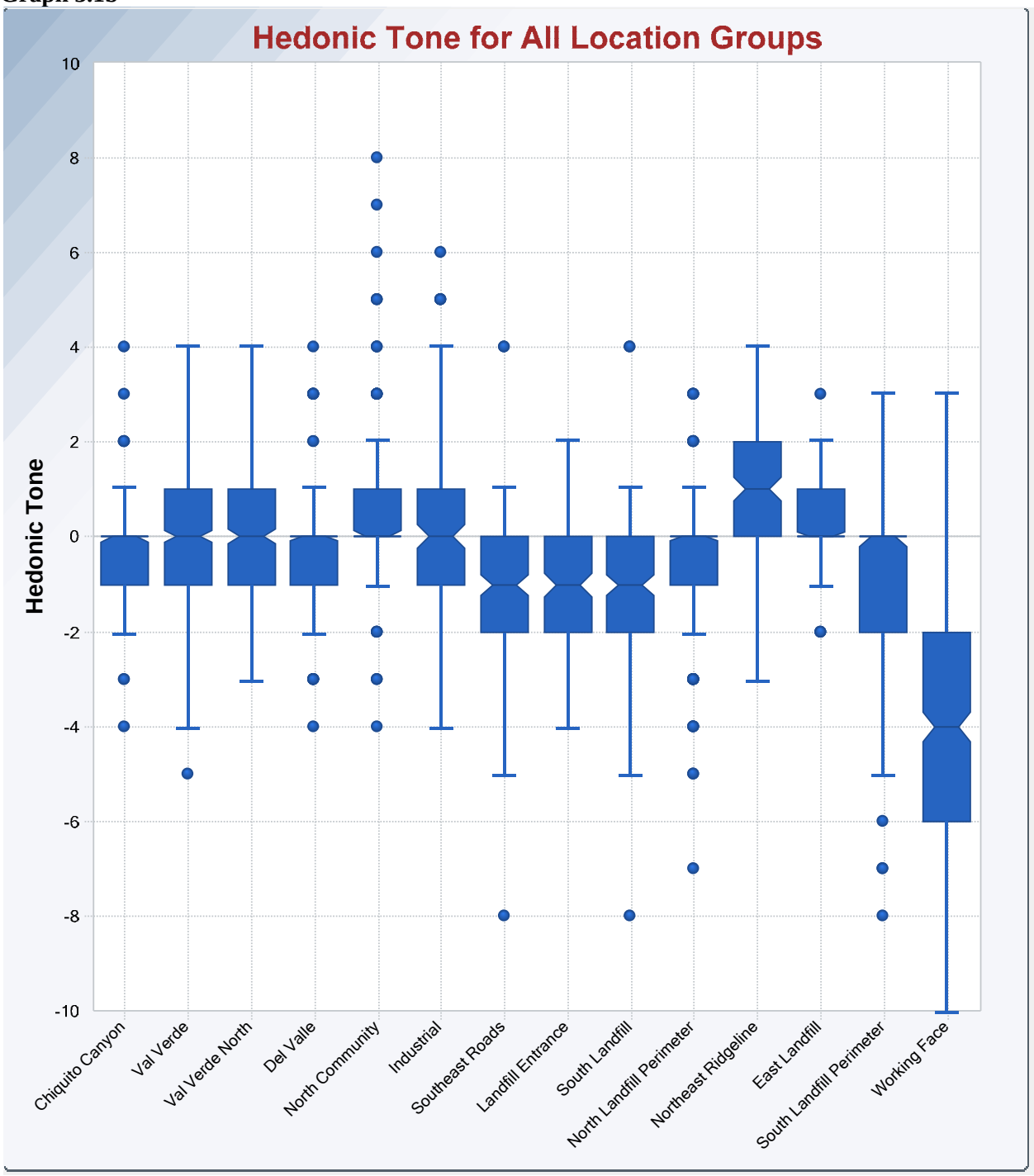
[2] CH2MHill, 2014, Chiquita Canyon Landfill Master Plan Revision Draft Environmental Impact Report.

# Graphs

**Graph 3.1a**


Dilution-to-Threshold Values for All Location Groups
Dilution-to-Threshold (D/T) Values
60
50
40
30
20
10
0
Chiquito Canyon
Val Verde
Val Verde North
Del Valle
North Community
Industrial
Southeast Roads
Landfill Entrance
South Landfill
North Landfill Perimeter
Northeast Ridgeline
East Landfill
South Landfill Perimeter
Working Face

**Graph 3.1b**


Hedonic Tone for All Location Groups
Hedonic Tone
10
8
6
4
2
0
-2
-4
-6
-8
-10
Chiquito Canyon
Val Verde
Val Verde North
Del Valle
North Community
Industrial
Southeast Roads
Landfill Entrance
South Landfill
North Landfill Perimeter
Northeast Ridgeline
East Landfill
South Landfill Perimeter
Working Face

# Figures


# Odor Sampling Locations

- **Sampling Location**

NOTES:

1. All locations are approximate.

N

0 0.25 0.5 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: 2.1 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


## Odor Sampling Locations

**Location Group**

- Chiquito Canyon
- Del Valle
- East Landfill
- Industrial
- Landfill Entrance
- North Community
- North Landfill Perimeter
- Northeast Ridgeline
- South Landfill
- Southeast Landfill Perimeter
- Southeast Roads
- Val Verde South
- Val Verde North
- Working Face

NOTES:

1. All locations are approximate.

N

0 0.25 0.5 Miles

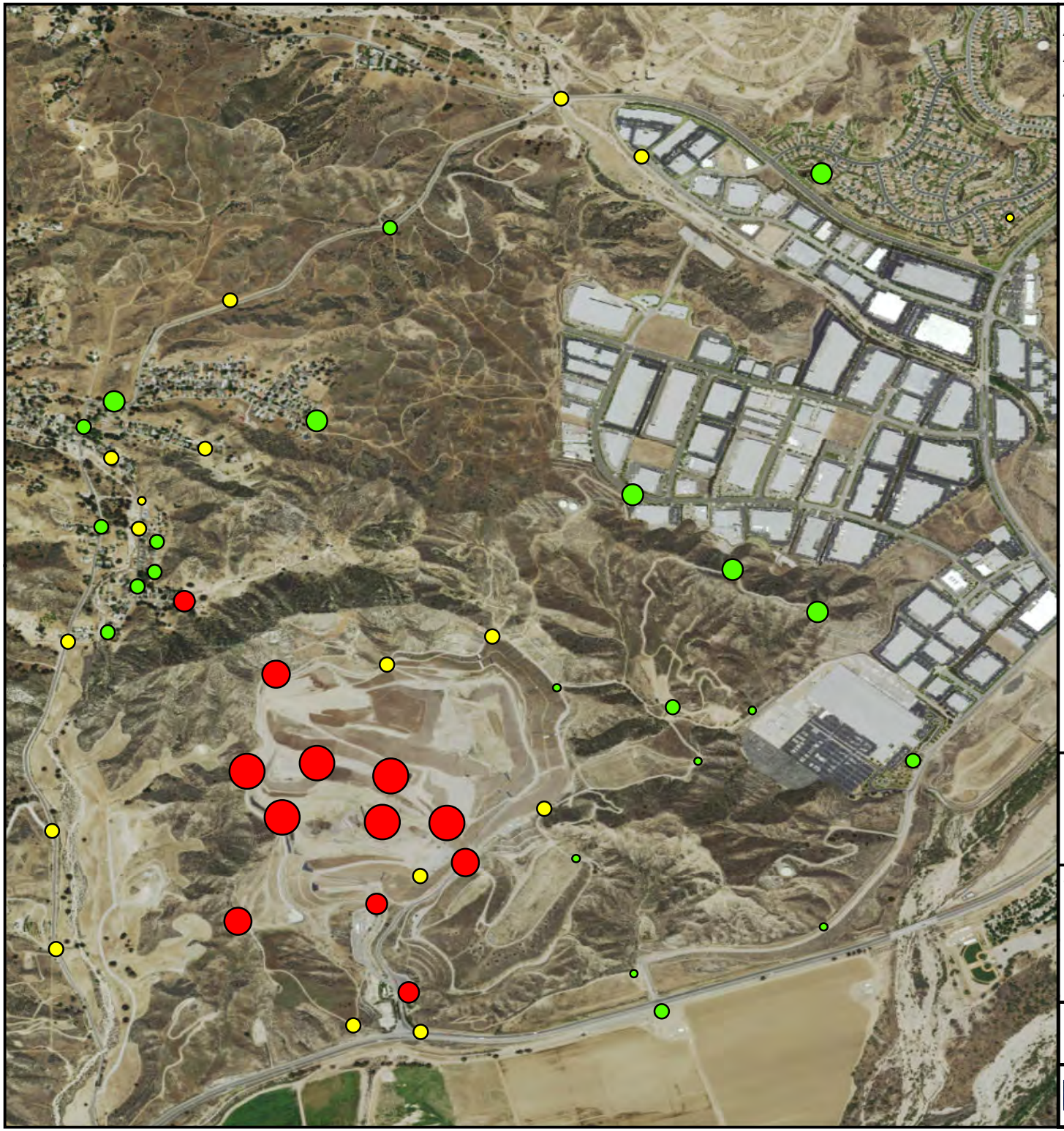
Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Location Groups

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: 2.1a |
| SWAPE | Approved: PER | Date: 07.21.2015 | |



## Average Dilution to Threshold Values And Hedonic Tone Values

**Average D/T**

- **0.2 - 0.5**
- **0.6 - 1**
- **2**
- **3 - 7**
- **8 - 60**

**Average Hedonic Tone**

- -4.5 - -1.0
- -0.9 - 0.0
- 0.1 - 1.5

NOTES:

1. All locations are approximate.
2. Values were averaged for each sampling event and then averaged over all 25 events.

N

0 0.25 0.5 Miles

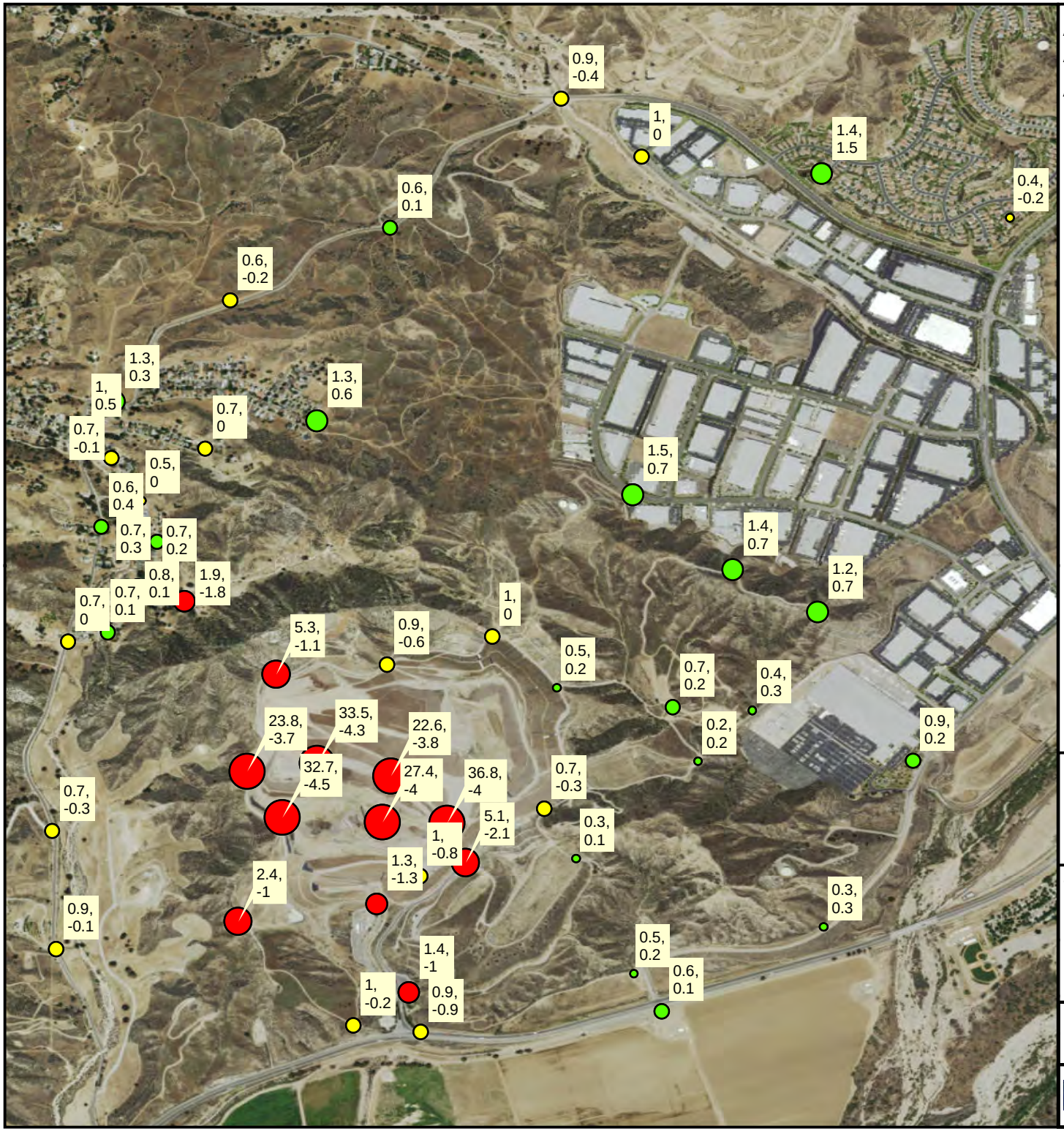
Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Average Dilution to Threshold Values
And Average Hedonic Tone Values

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: 3.1 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |




## Average Dilution to Threshold Values And Hedonic Tone Values

**Average D/T**

- **0.2 - 0.5**
- **0.6 - 1**
- **2**
- **3 - 7**
- **8 - 60**

**Average Hedonic Tone**

- -4.5 - -1.0
- -0.9 - 0.0
- 0.1 - 1.5

Labeling Convention

D/T,
Hedonic Tone

NOTES:

1. All locations are approximate.
2. Values were averaged for each sampling event and then averaged over all 25 events.

N

0 0.25 0.5 Miles

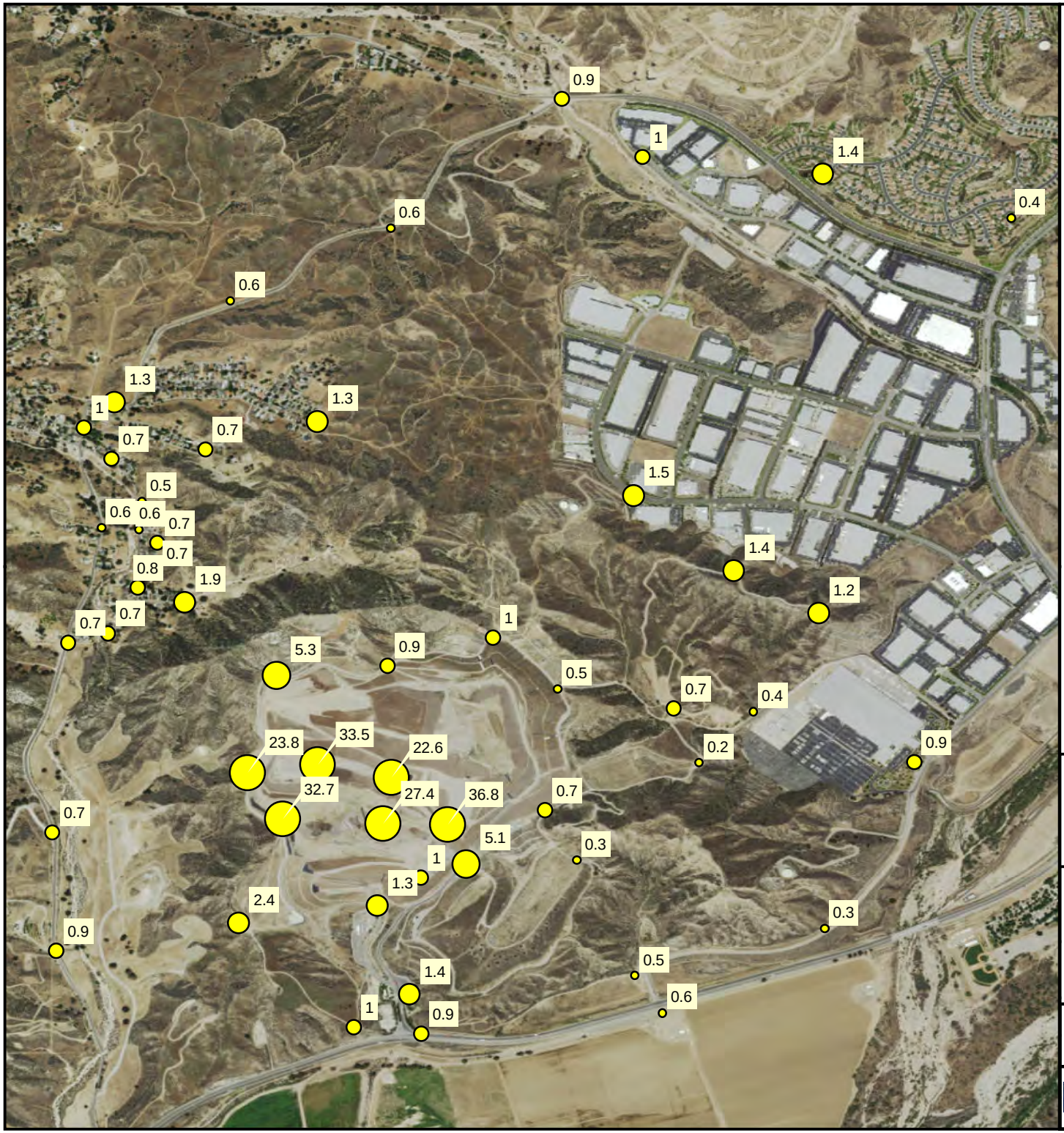
Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Average Dilution to Threshold Values
And Average Hedonic Tone Values

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: 3.1alt |
| SWAPE | Approved: PER | Date: 07.21.2015 | |




## Average Dilution to Threshold Values

**Average D/T**

- **0.2 - 0.6**
- **0.7 - 1.0**
- **1.1 - 2.4**
- **2.5 - 5.3**
- **5.4 - 36.8**

NOTES:

1. All locations are approximate.
2. Values were averaged for each sampling event and then averaged over all 25 events.

N

0 0.25 0.5 Miles

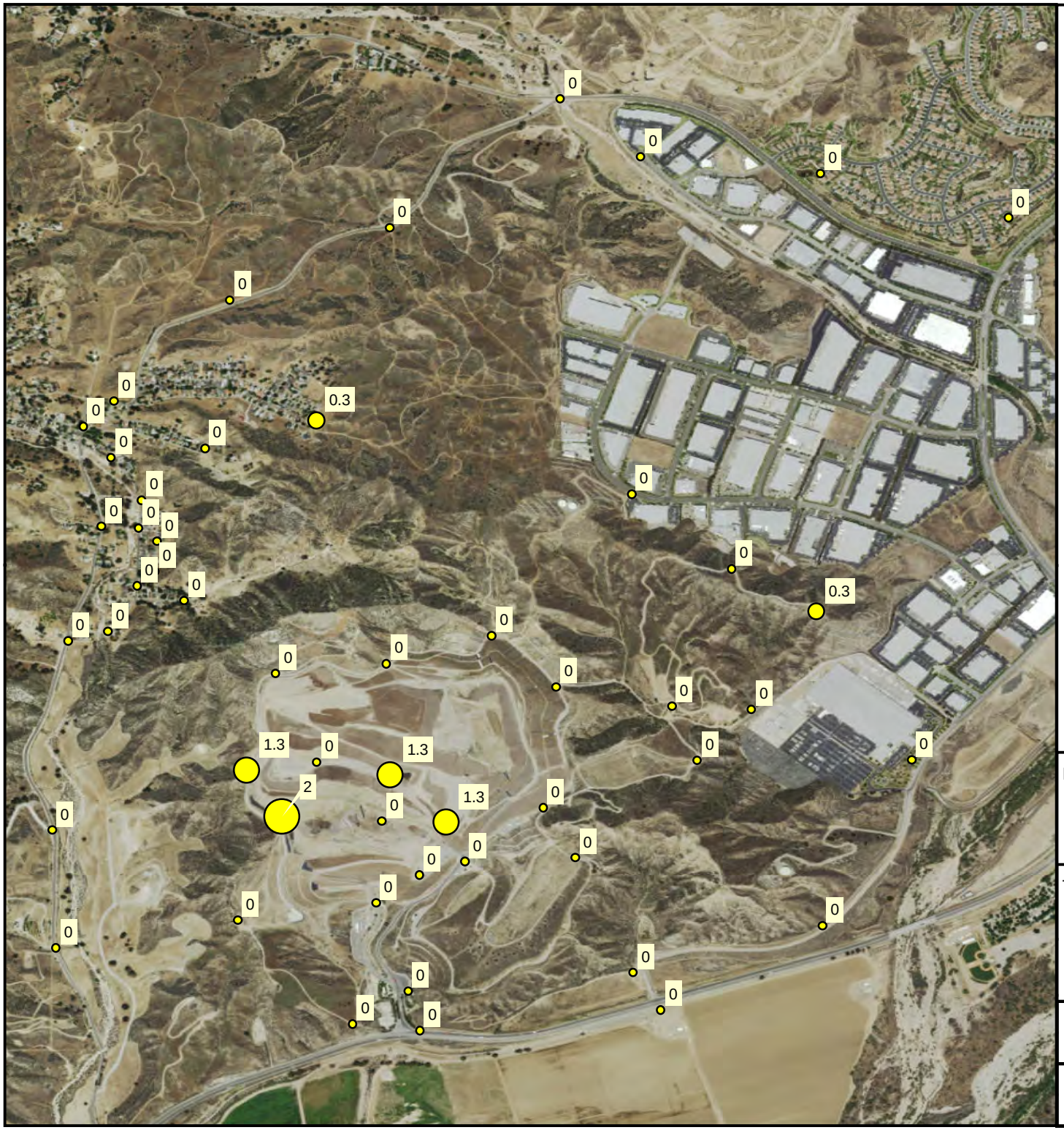
Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Average Dilution to Threshold Values

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: 3.1a |
| SWAPE | Approved: PER | Date: 07.21.2015 | |




## Minimum Dilution to Threshold Values

**Minimum D/T**

- **0.0**
- **0.1 - 0.3**
- **0.4 - 1.3**
- **1.4 - 2.0**

NOTES:

1. All locations are approximate.
2. Values were averaged for each sampling event and then the minimum average value was reported for each location from all 25 sampling events.

N

0 0.25 0.5 Miles

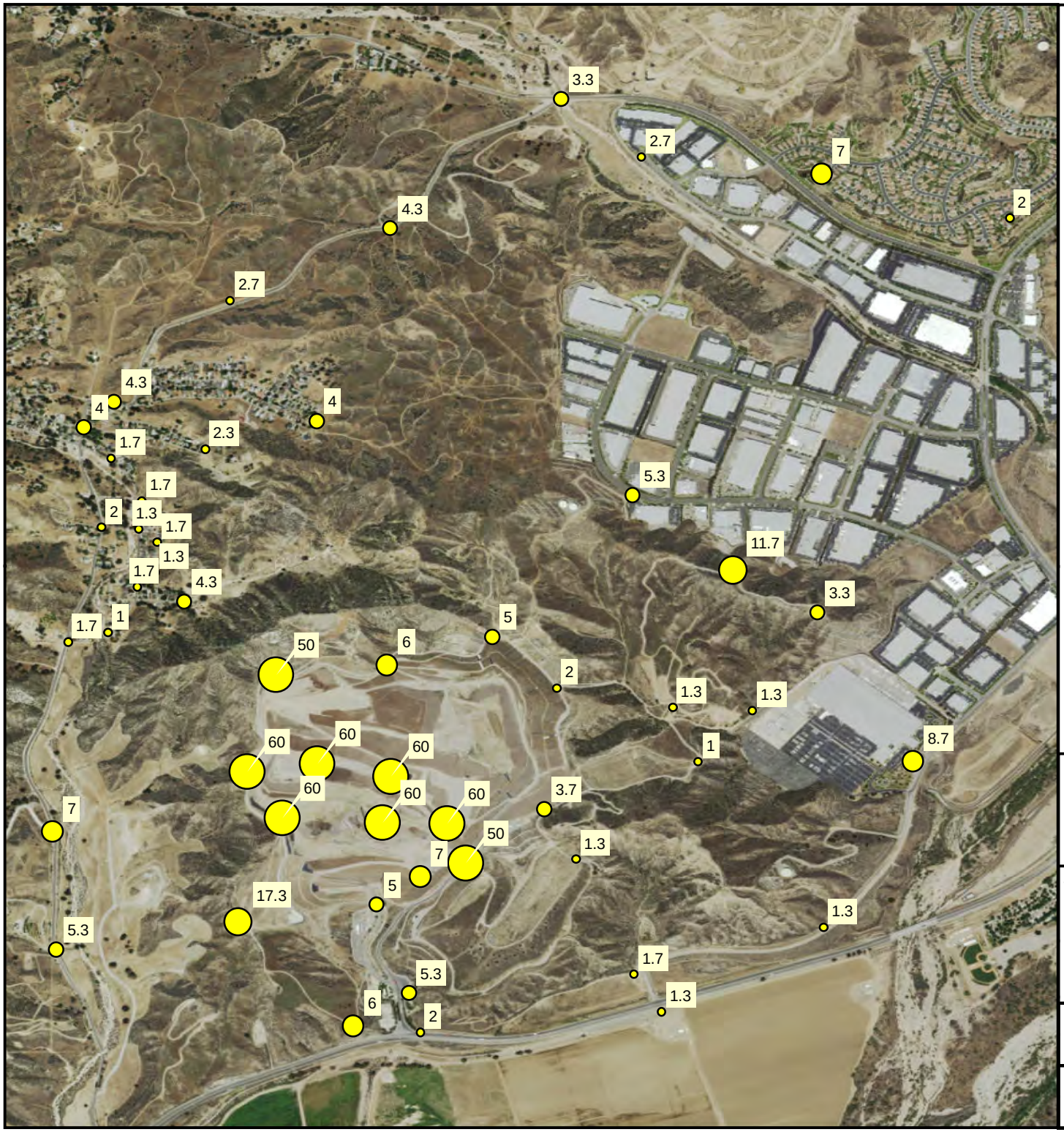
Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Minimum Dilution to Threshold Values

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: 3.1b |
| SWAPE | Approved: PER | Date: 07.21.2015 | |




## Maximum Dilution to Threshold Values

**Maximum D/T**

- **1.0 - 2.7**
- **2.8 - 5.3**
- **5.4 - 8.7**
- **8.8 - 17.3**
- **17.4 - 60.0**

NOTES:

1. All locations are approximate.
2. Values were averaged for each sampling event and then the maximum average value was reported for each locaiton from all 25 sampling events.

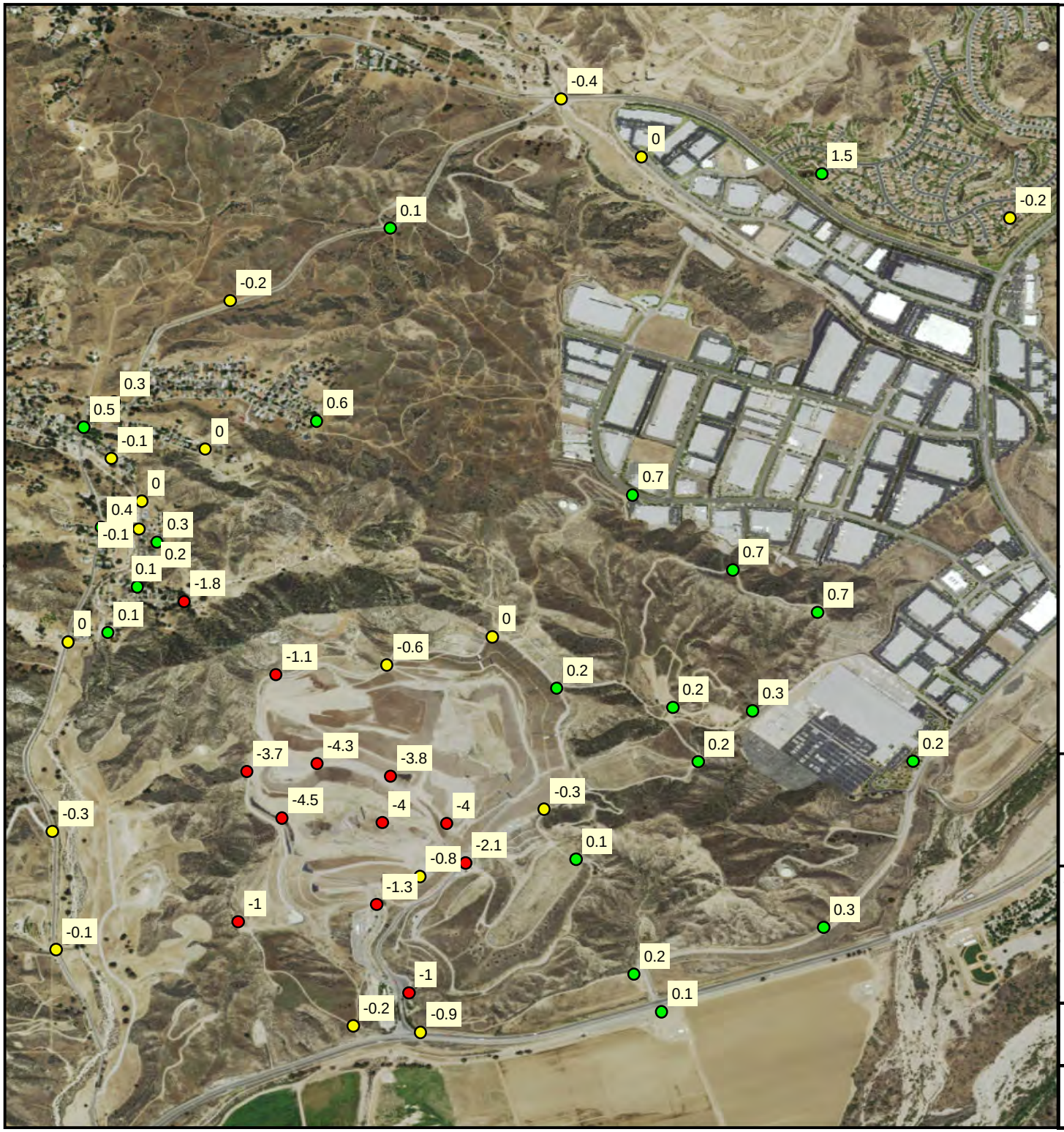
Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Maximum Dilution to Threshold Values

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: 3.1c |
| SWAPE | Approved: PER | Date: 07.21.2015 | |




## Average Hedonic Tone Values

**Average Hedonic Tone**

- **-4.5 - -1.0**
- **-0.9 - 0.0**
- **0.1 - 1.5**

NOTES:

1. All locations are approximate.
2. Values were averaged for each sampling event and then averaged over all 25 events.

N

0 0.25 0.5 Miles

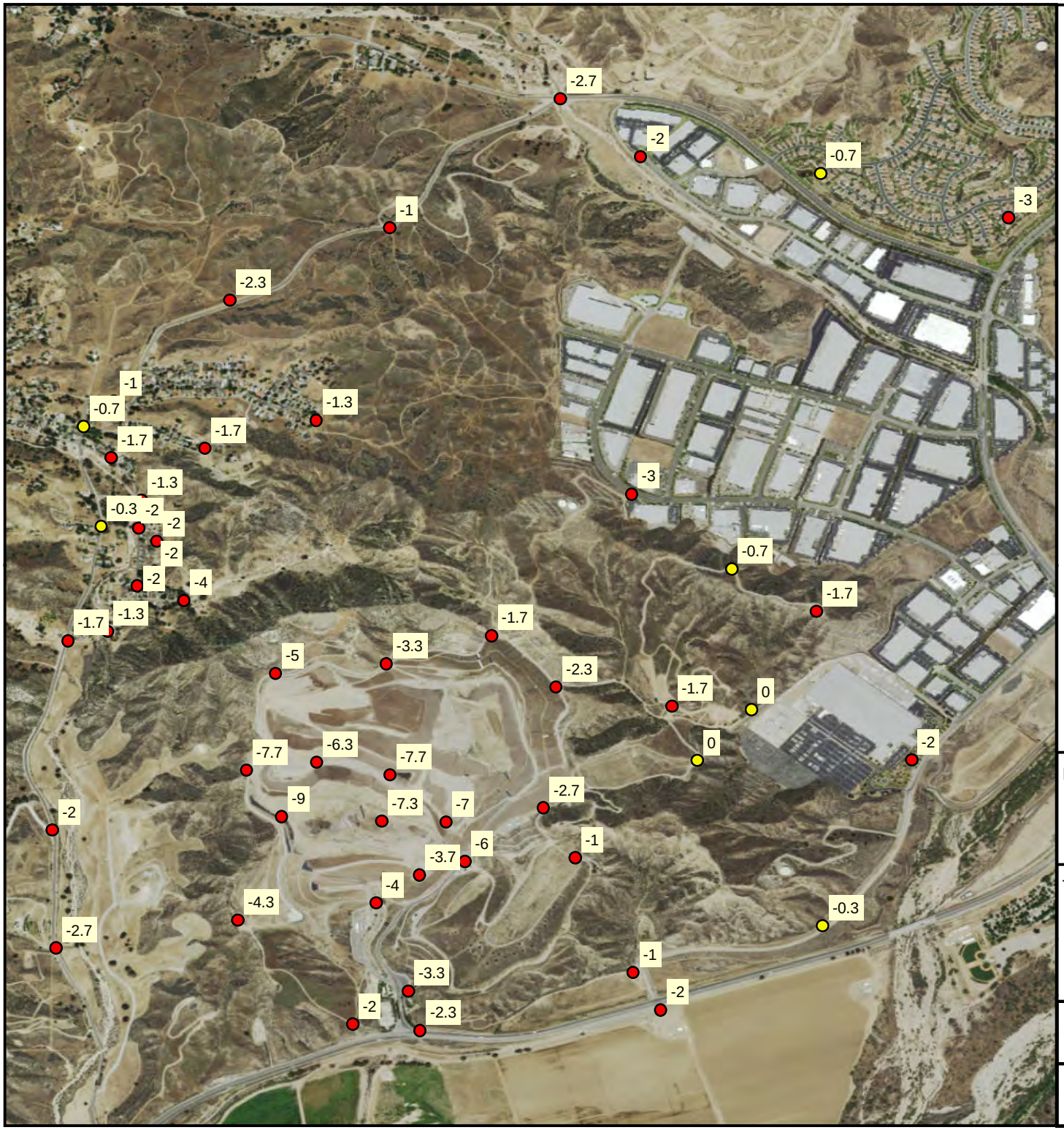
Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Average Hedonic Tone Values

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: 3.1d |
| SWAPE | Approved: PER | Date: 07.21.2015 | |




# Minimum Hedonic Tone Values

**Minimum Hedonic Tone**

- **-9.0 - -1.0**
- **-0.9 - 0.0**
- **0.1 - 0.0**

NOTES:

1. All locations are approximate.
2. Values were averaged for each sampling event and then the minimum average value was reported for each location from all 25 sampling events.

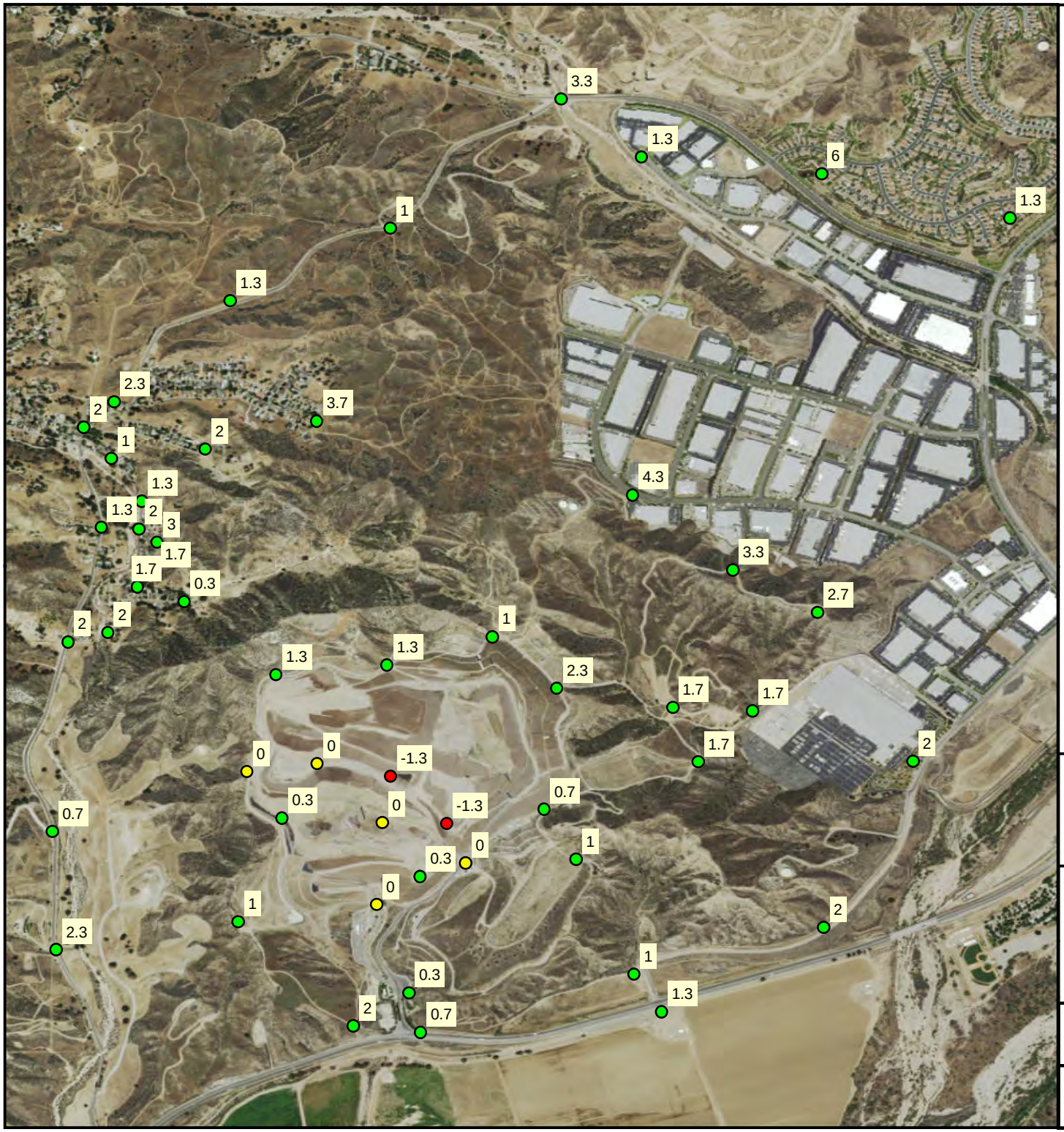
Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Minimum Hedonic Tone Values

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: 3.1e |
| SWAPE | Approved: PER | Date: 07.21.2015 | |




# Maximum Hedonic Tone Values

**Maximum Hedonic Tone**

- **-1.3 - -1.0**
- **-0.9 - 0.0**
- **0.1 - 6.0**

NOTES:

1. All locations are approximate.
2. Values were averaged for each sampling event and then the maximum average value was reported for each location from all 25 sampling events.

N

0 0.25 0.5 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Maximum Hedonic Tone Values

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: 3.1f |
| SWAPE | Approved: PER | Date: 07.21.2015 | |

# Appendix A
# Sampling Location Maps


## Odor Sampling Locations

- Chiquito Canyon Road Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.0375 0.075 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
Chiquito Canyon Road

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A1 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


## Odor Sampling Locations

- Val Verde South Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.0375 0.075 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
Val Verde South

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A2 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


## Odor Sampling Locations

- Val Verde North Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.05 0.1 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
Val Verde North

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A3 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


# Odor Sampling Locations

- Del Valle Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.1 0.2 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
Del Valle

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A4 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


## Odor Sampling Locations

- North Community Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.05 0.1 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
North Community

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A5 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


# Odor Sampling Locations

- Industrial Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.1 0.2 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
Industrial

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A6 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


## Odor Sampling Locations

- Southeast Roads Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.1 0.2 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
Southeast Roads

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A7 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


## Odor Sampling Locations

- Landfill Entrance Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.02 0.04 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
Landfill Entrance

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A8 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


## Odor Sampling Locations

- South Landfill Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.05 0.1 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
South Landfill

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A9 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


# Odor Sampling Locations

- Southeast Landfill Perimeter Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.0375 0.075 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
Southeast Landfill Perimeter

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A10 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


## Odor Sampling Locations

- North Landfill Perimeter Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.1 0.2 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
North Landfill Perimeter

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A11 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


# Odor Sampling Locations

- Northeast Ridgeline Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.0375 0.075 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
Northeast Ridgeline

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A12 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


# Odor Sampling Locations

East Landfill Sampling Locations

NOTE:

1. All locations are approximate.

N

0 0.0375 0.075 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
East Landfill

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A13 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |


# Odor Sampling Locations

- Working Face Sampling Locations

NOTES:

1. All locations are approximate.
2. Sampling Locations around the Working Face varied between Sampling Events due to daily changes in Landfill filling activities.

N

0 0.05 0.1 Miles

Project:

Chiquita Canyon Landfill
Odor Survey

Title:

Chiquita Canyon Landfill
Odor Sampling Locations
Working Face

| | | | |
|---|---|---|---|
| DRAFT | Drawn by: LME | Project No.: 835 | Figure: A14 |
| SWAPE | Approved: PER | Date: 07.21.2015 | |

# Appendix B
# Description of Sampling Locations

Location 1: Chiquito Canyon South

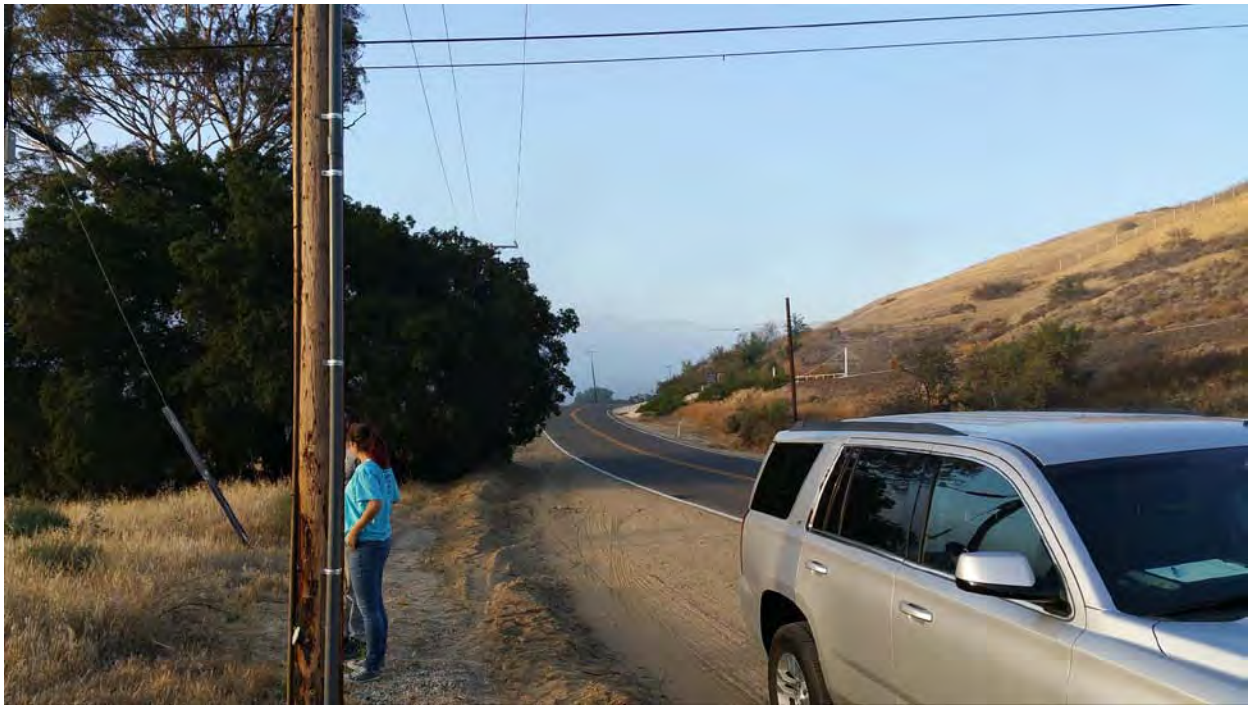
Location Description

Sampling location #1 is on the right shoulder of Chiquito Canyon Road at an elevation of approximately 1000 feet and approximately 0.2 miles north of the intersection of Chiquito Canyon Road and Henry Mayo Drive. This road is the main route taken to access the Val Verde community from the South. It is located slightly northwest of the Chiquita Canyon Landfill ("CCLF") entrance and is within approximately 0.45 to 0.55 miles from the open face of the landfill. The location is among open fields with dirt, grass, shrubbery, and trees with surrounding hills and mountains.

Odor

Sampling Location #1 generally had odors described as hay, grass, dirt, and earthy. There were four separate occasions, out of twenty-five, where there were odors described as faint, sour, and stale trash believed to have originated from the landfill.

Location 2: Fire Center Road



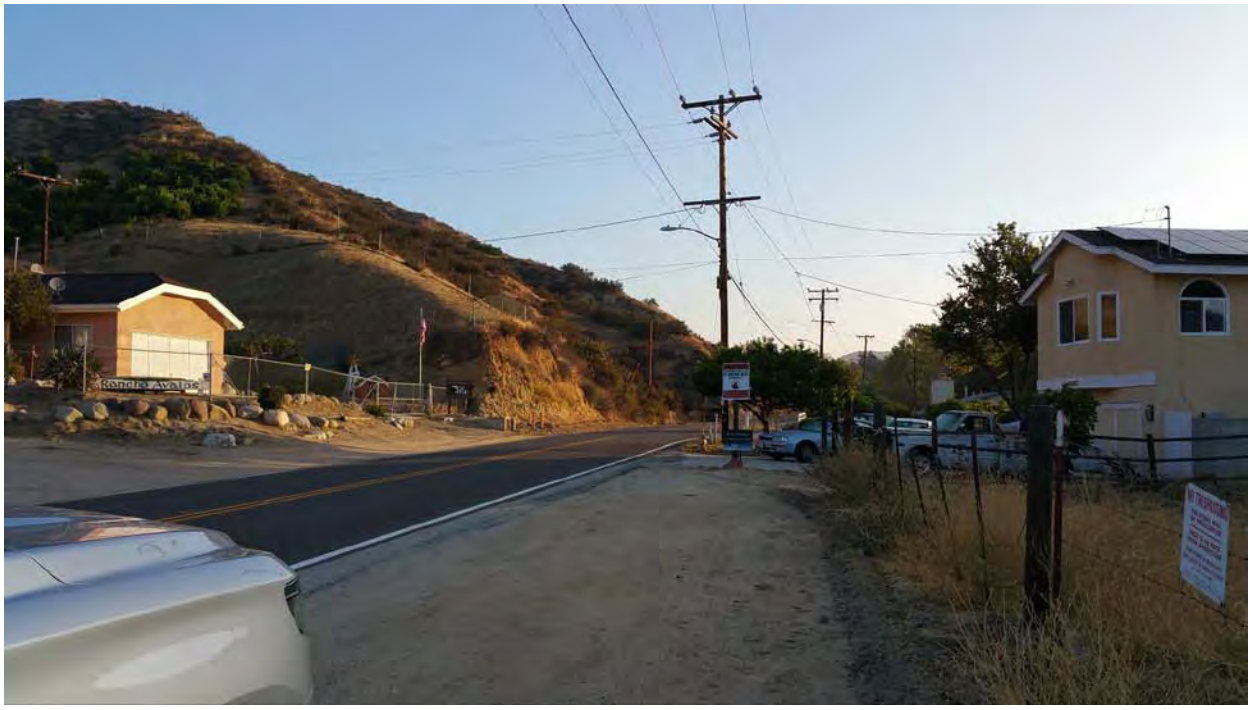
Location Description

Sampling location #2 is on the right shoulder of Chiquito Canyon Road approximately 0.85 miles north of the intersection of Chiquito Canyon Road and Henry Mayo Drive and is right across from a fire department training center. Chiquito Canyon Road is the main route taken to access the Val Verde community from the South and is located at an elevation of 1070 feet. It is located slightly northwest of the Chiquita Canyon Landfill ("CCLF") entrance and is within approximately 0.45 to 0.55 miles west of the open face of the landfill. The location is among open fields with dirt, grass, shrubbery, and trees with surrounding hills and mountains.

Odor

Sampling Location #2 generally had odors described as hay, grass, dirt, and earthy. There were three separate occasions where there were odors detected described as faint, sour, and stale trash believed to have originated from the landfill.

Location 3: Entrance to Community



Location Description

Sampling location #3 is on the right shoulder of Chiquito Canyon Road approximately 1.3 miles north of the intersection of Chiquito Canyon Road and Henry Mayo Drive at an elevation of approximately 1130 feet. This location is placed directly before the entrance to the Val Verde community. It is located northwest of the Chiquita Canyon Landfill ("CCLF") entrance and is within approximately 0.55 to 0.65 miles west of the open face of the landfill. The location is among open fields with dirt, grass, shrubbery, and trees with surrounding hills and mountains and residential homes.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Location 4: Lincoln Avenue South Turn

Location Description

Sampling location #4 is approximately 0.1 miles from the entrance to the community and is at an elevation of approximately 1120 feet. It is located northwest of the Chiquita Canyon Landfill ("CCLF") entrance and is within approximately 0.55 to 0.65 miles northwest of the open face of the landfill. The location is among open fields of dirt, grass, shrubbery, trees, residential homes and properties, and motor vehicles.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Location 5: Jackson Gate


Location Description

Sampling location #5 is approximately 0.2 miles from the entrance to the community and is at an elevation of approximately 1150 feet. It is located within approximately 0.55 to 0.65 miles northwest of the open face of the landfill. The location houses farm animals of potentially a large variety including roosters that are audible from the sampling point. It is also among grass, shrubbery, trees, residential homes and properties, and motor vehicles.

Odor

Sampling location #5 is likely to be the largest confounder in the Val Verde South region, as a manure smell could be detected at almost every single sampling event. There are animals housed near the sampling location, although it is unclear what exact animals are being housed. One of the animals housed could be chickens, as roosters can be heard.

Location 6: Monroe / Lincoln


Location Description

Sampling location #6 is approximately 0.07 miles from the Jackson sampling location and is on the corner of the Lincoln Avenue and Monroe Street intersection. It is located within approximately 0.60 to 0.70 miles northwest of the open face of the landfill and is at an elevation of approximately 1140 feet. It is also among grass, shrubbery, trees, residential homes and properties, and motor vehicles.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Location 7: Madison Street and Lincoln Avenue


Location Description

Sampling location #7 is approximately 0.18 miles from the Jackson sampling location and is on the corner of the Lincoln Avenue and Madison Street intersection. It is located within approximately 0.70 to 0.80 miles northwest of the open face of the landfill and is at an elevation of approximately 1155 feet. It is among grass, shrubbery, trees, residential homes and properties, and motor vehicles.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Location 8: Taylor Street and Lincoln Avenue


Location Description

Sampling location #8 is the fifth location in the Val Verde community approximately 0.25 miles from the Jackson sampling location and is on the corner of the Taylor Street and Lincoln Avenue intersection. It is located within approximately 0.70 to 0.80 miles northwest of the open face of the landfill and is at an elevation of approximately 1170 feet. It is also among grass, shrubbery, trees, residential homes and properties, and motor vehicles.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Location 9: Harding Lot

Location Description

Sampling location #9 is approximately 0.21 miles from the Jackson sampling location and is located between Taylor Street and Lincoln Avenue and Wilson St. and Lincoln Avenue on Harding Avenue. It is located within approximately 0.70 to 0.80 miles northwest of the open face of the landfill and is at an elevation of approximately 1165 feet. It is among grass, shrubbery, trees, residential homes and properties, and motor vehicles. The residential home located by the sampling location has various flowering plants as seen in the figure.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Location 10: Harding South Turn


Location Description

Sampling location #10 is approximately 0.07 miles from the Jackson sampling location and is on the corner of Wilson Street and Harding Avenue intersection. It is located within approximately 0.60 to 0.70 miles northwest of the open face of the landfill at an elevation of approximately 1150 feet. It is also among grass, shrubbery, trees, residential homes and properties, and motor vehicles.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Location 11: Chiquito Canyon Road and Madison Street


Location Description

Sampling location #11 is approximately 0.22 miles from the Jackson sampling location and is on the corner of the Chiquito Canyon Road and Madison Street intersection. It is located within approximately 0.75 to 0.85 miles northwest of the open face of the landfill at an elevation of approximately 1150 feet. It is also among grass, shrubbery, trees, residential homes and properties, and motor vehicles.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 12: San Martinez Road and Lincoln Avenue


Location Description

Sampling location #12 is approximately 0.40 miles from the Jackson sampling location and is on the corner of the Lincoln Avenue and San Martinez Road intersection. It is located within approximately 0.95 to 1.05 miles northwest of the open face of the landfill at an elevation of approximately 1185 feet. It is also among grass, shrubbery, trees, residential homes and properties, and motor vehicles.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 13: Chiquito Canyon Road and Central Avenue


Location Description

Sampling location #13 is approximately 0.45 miles from the Jackson sampling location and is on the corner of the Chiquito Canyon Road and Central Avenue intersection. It is located within approximately 1.00 to 1.10 miles northwest of the open face of the landfill and is at an elevation of approximately 1190 feet. It is among grass, shrubbery, trees, residential homes and properties, and motor vehicles. The sampling location is also next to flowering plants and a small park.

Odor

Sampling location #13 is located next to a small park with flowering plants. A floral smell could be detected during numerous sampling events. Other than this, no odors believed to originate from the landfill.

Sampling Location 14: Central East

Location Description

Sampling location #14 is approximately 0.38 miles from the Jackson sampling location and is on the corner of the Chiquito Canyon Road and Central Avenue intersection. It is located within approximately 0.90 to 1.00 miles northwest of the open face of the landfill and is at an elevation of approximately 1250 feet. It is among grass, shrubbery, trees, residential homes and properties, and motor vehicles. The sampling location is also next to flowering plants and a small park.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 15: Hunstock Drive and Lincoln Avenue


Location Description

Sampling location #15 is approximately 0.50 miles from the Jackson sampling location and is on the corner of the Chiquito Canyon Road and Central Avenue intersection. It is located approximately 1.00 to 1.10 miles northwest of the open face of the landfill and is at an elevation of approximately 1120 feet. It is among grass, shrubbery, trees, residential homes and properties, and motor vehicles.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 16: Cromwell Avenue and Hunstock Street


Location Description

Sampling location #16 is approximately 0.53 miles from the Jackson sampling location and is on Windsor Road in between Cromwell Avenue and Hunstock Street. It is located within approximately 0.90 to 1.00 miles northwest of the open face of the landfill and is at an elevation of approximately 1280 feet. It is among grass, shrubbery, trees, residential homes and properties, and motor vehicles.

Odor

A sweet cherry or strawberry odor could be detected at sampling location #16 during some of the sampling events. This odor is believed to have originated from a factory located nearby. No odors believed to originate from the landfill.

Sampling Location 17: Del Valle 1


Location Description

Sampling location #17 is on the right shoulder of Del Valle Road 0.40 miles away from the Hunstock St. and Del Valle Road intersection and approximately 0.78 miles from the Jackson sampling location. This sampling point is located on a route that leads to the Castaic communities and is at an elevation of approximately 1290 feet. It is located within approximately 1.20 to 1.30 miles northwest of the open face of the landfill and is among large field of dirt, grass, shrubbery, trees, hills and mountains.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 18: Del Valle 2

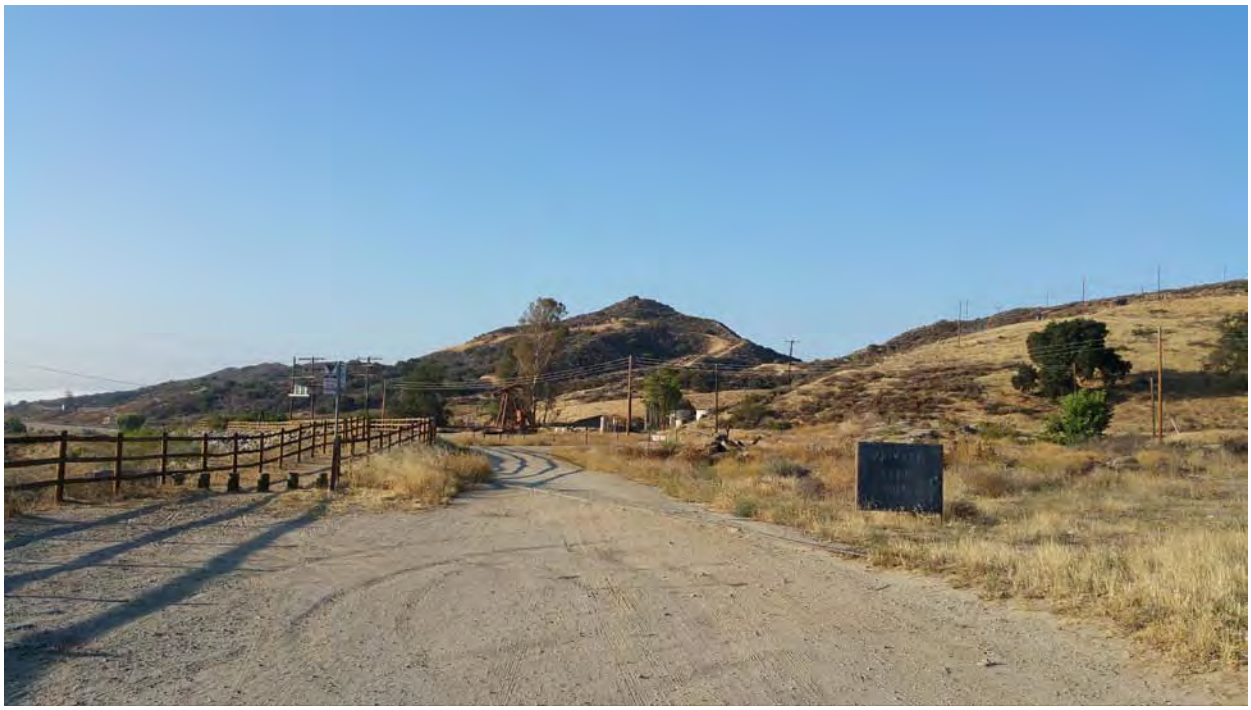
Location Description

Sampling location #18 is on the right shoulder of Del Valle Road 0.80 miles away from the Hunstock St. and Del Valle Road intersection and approximately 0.78 miles from the Jackson sampling location. It is located within approximately 1.20 to 1.30 miles northwest of the open face of the landfill and is at an elevation of approximately 1275 feet. It is among large field of dirt, grass, shrubbery, trees, hills and mountains.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 19: Del Valle Road and Halsey Canyon Road



Location Description

Sampling location #19 is on the Del Valle Road and Hasley Canyon Road intersection and approximately 1.45 miles from the Jackson sampling location. It is located within approximately 1.75 to 1.85 miles northwest of the open face of the landfill and is at an elevation of approximately 1200 ft. It is among large field of dirt, grass, shrubbery, trees, hills and mountains.

Odor

A manure odor could be detected at sampling location #19 on various occasions believed to have originated from sampling location #5. Other than this, no odors believed to originate from the landfill.

Sampling Location 20: Liverpool Court

Location Description

Sampling location #20 is the first of two community sampling locations located northeast of the landfill passing the commercial section of the region as well as Hasley Canyon Road. The location was accessed through the entry point to the community on Hasley Canyon Road and Gibraltar Lane and is at an elevation of approximately 1250 feet. It is located within approximately 1.85 to 1.95 miles northeast of the open face of the landfill and is among grass, trees, flowering plants, residential homes, and motor vehicles.

Odor

Honeysuckle plants were located near sampling location #20, resulting in a sweet smell being detected on most sampling events. Other than this, no odors believed to originate from the landfill.

Samplin Location 21: Picford Place

Location Description

Sampling location #21 is the second of two sampling locations in the community located northeast of the landfill past Hasley Canyon Road and the commercial sections. It is located within approximately 1.95 to 2.05 miles northwest of the open face of the landfill and is at an elevation of approximately 1190 feet. It is among residential homes, grass, trees, flowering plants, and motor vehicles.

Odor

A sweet trash odor could be detected at five sampling events due to residential trash bins placed outside for collection. Other than this, no odors believed to originate from the landfill.

Sampling Location 22: Industry Drive

Location Description

Sampling location #22 is on the sidewalk of Industry Drive 0.8 miles west of the Hasley Canyon Road and Industry Drive intersection and is at an elevation of approximately 1190 feet. The location is within approximately 1.70 to 1.80 miles northwest of the open face of the landfill and is among commercial buildings, motor vehicles, hills, and large fields of dirt grass, and trees

Odor

A soapy odor could be detected at sampling location #22, along with a manure odor. The soapy odor's source is unknown, although the manure odor could possibly originate from sampling location #5. A subtle trash smell could be detected at one sampling event, although the source is unknown.

Sampling Location 23: Livingston Avenue Watertank

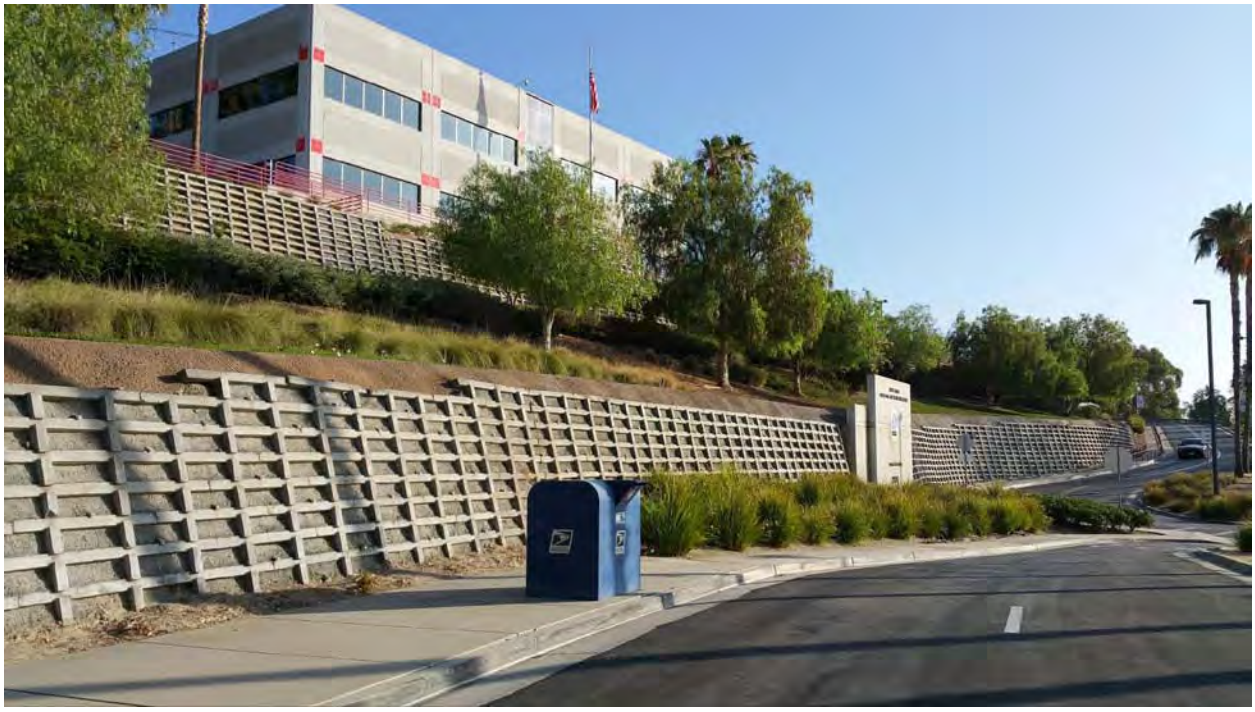
Location Description

Sampling location #23 is at the foot of the path leading up to a watertank located on Livingston Avenue 0.7 miles west of the intersection at Livingston Avenue and Harrison Parkway. The location is within approximately 1.00 to 1.10 miles northwest of the open face of the landfill and is at an elevation of approximately 1250 feet. It is adjacent to and also among commercial buildings, motor vehicles, hills, and large fields of dirt grass, and trees

Odor

Various odors could be detected at sampling location #23 including honeysuckle, soap, cherry, bakery, and trash. Trash odor detected at two events was determined to have originated from the landfill. Other odors could have originated from honeysuckle plants and a factory nearby.

Sampling Location 24: Post Office



Location Description

Sampling location #24 is located at the post office mail drop-off on Franklin Parkway within approximately 1.20 to 1.30 miles east of the open face of the landfill. It is at an elevation of approximately 1050 feet and is adjacent to the post office among assorted shrubbery, trees, and motor vehicles.

Odor

A bakery smell could be detected at this location during numerous sampling events. At one sampling event, there was a very faint trash odor, although the source is unknown. Other than this, no odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 25: Franklin

Location Description

Sampling location #25 is approximately 0.25 miles from the post office sampling location at an elevation of approximately 1050 feet. The location is within approximately 1.15 to 1.25 miles southeast of the open face of the landfill and is among large fields of dirt, grass, shrubbery, trees, hills and mountains.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 26: Wolcott Turn

Location Description

Sampling location #26 is approximately 0.50 miles away from the CCLF entrance and right before the intersection of Wolcott Way and Henry Mayo Drive at an elevation of approximately 970 feet. It is located within approximately 0.70 to 0.80 miles southeast of the open face of the landfill and is among large fields of dirt, grass, shrubbery, trees, hills and mountains.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 27: Wolcott Light

Location Description

Sampling location #27 is located at the intersection of Wolcott Way and Henry Mayo Drive at an elevation of approximately 970 feet. The location is within approximately 0.85 to 0.95 miles southeast of the open face of the landfill and is among large fields of dirt, grass, shrubbery, trees, hills, mountains, and motor vehicles.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 28: CCLF Entrance

Location Description

Sampling location #28 is at the entrance to the landfill on Henry Mayo Drive at an elevation of approximately 980 feet. It is located within approximately 0.55 to 0.65 miles northwest of the open face of the landfill and is among grass, shrubbery, trees, hills and mountains as well as frequent passing of garbage trucks in and out of the landfill.

Odor

A trash odor was detected in instances where garbage trucks were traveling in and out of the landfill entrance. Other than this, No unusual smells were detected at this location.

Sampling Location 29: Turnout Tank

Location Description

Sampling location #29 is off to the side adjacent to the sign-in station of the entrance to the landfill. The location is at an elevation of 985 feet and is located within approximately 0.50 to 0.60 miles northwest of the open face of the landfill. It is among grass, shrubbery, trees, hills and mountains as well as numerous garbage trucks and motor vehicles passing in and out of the landfill.

Odor

Faint trash odors could be detected from the landfill at numerous sampling events.

Sampling Location 30: White Tanks

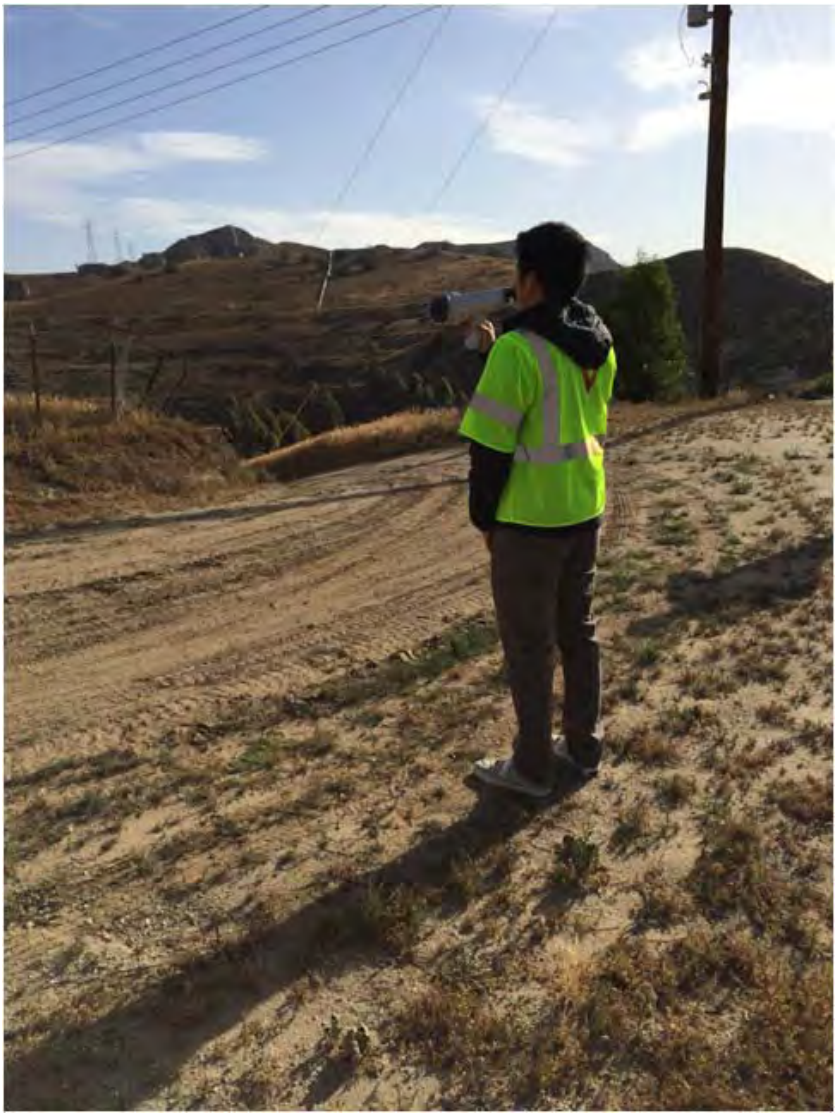
Location Description

Sampling location #30 is at the white tanks at an elevation of 1010 feet. The location is approximately 0.25 miles north of the entrance to the landfill. It is located within approximately 0.30 to 0.40 miles southeast of the open face of the landfill and is among dirt, grass, shrubbery, hills, and mountains.

Odor

Faint trash odors could be detected during numerous sampling events.

Sampling Location 31: South Ridgeline Bend



Location Description

Sampling location #31 is located on the south end of the landfill directly west of the landfill entrance. It is on an uphill route heading to the Fire Center Overlook and is at an elevation of 1060 feet. The location is within approximately 0.55 to 0.65 miles slightly southeast of the open face of the landfill and is among dirt, grass, shrubbery, hills, and mountains.

Odor

A trash odor could be detected at occasional sampling events. Other than this, no unusual odors were detected at sampling location #31.

Sampling Location 32: Fire Center Overlook

Location Description

Sampling location #32 overlooks Chiquito Canyon Road and the Fire Department Training Center and is located at an elevation of approximately 1250 feet. The location is within approximately 0.30 to 0.40 miles southwest of the open face of the landfill and is among dirt, grass, shrubbery, and trees.

Odor

Faint trash odors could be detected during numerous sampling events.

Sampling Location 33: Perimeter West

Location Description

Sampling location #33 is generally located at the bottom of the route descending from the Fire Center Overlook sampling point at an elevation of approximately 1210 feet. This sampling point sometimes varied depending on the location of the working face of the landfill. The location is usually within approximately 0.10 to 0.20 miles northwest, west, or southwest of the open face of the landfill and is among dirt, gravel, grass, shrubbery,

Odor

Trash odors could be detected during numerous sampling events.

Sampling Location 34: Odor System

Location Description

Sampling location #34 is located at an operating machine for the odor system at an elevation of approximately 1325 feet. The location is approximately 0.25 to 0.30 miles north of Perimeter West sampling point and within approximately 0.30 to 0.40 miles north or northwest of the open face of the landfill. It is among large fields of dirt, gravel, grass, shrubbery, trees, hills, mountains, and most importantly the odor system misters.

Odor

During events where the odor system was operational, an “air freshener” smell could be detected.

Sampling Location 35: Perimeter North

Location Description

Sampling location #35 is located along the north perimeter of the landfill approximately 0.20 miles from the odor system sampling point at an elevation of approximately 1310 feet. The location is within approximately 0.35 to 0.45 miles northeast of the open face of the landfill and is among large field of dirt, gravel, grass, shrubbery, trees, hills and mountains.

Odor

A faint trash odor could be detected at occasional sampling events

Sampling Location 36: Perimeter NNE

Location Description

Sampling location #35 is located along the northeast perimeter of the landfill approximately 0.20 miles from the Perimeter North sampling point at an elevation of approximately 1245 feet. The location is within approximately 0.50 to 0.60 miles northeast of the open face of the landfill and is among large fields of dirt, gravel, grass, shrubbery, trees, hills, mountains, and most importantly odor misters.

Odor

During events where the odor system was operational, an “air freshener” smell could be detected.

Sampling Location 37: Perimeter Junction NE

Location Description

Sampling location #37 is located along the northeast perimeter of the landfill and is an entry point to the East Landfill region. It is approximately 0.20 miles from the Perimeter NNE sampling point at an elevation of approximately 1225 feet. The location is within approximately 0.55 to 0.65 miles northeast of the open face of the landfill and is among large fields of dirt, gravel, grass, shrubbery, trees, hills, mountains, and most importantly odor misters.

Odor

Other than one sampling event where a faint trash odor could be detected, no unusual smells were detected at this location

Sampling Location 38: Ridgeline North

Location Description

Sampling location #38 is located along the northeast ridgeline of the landfill at an elevation of 1350 feet and overlooks the commercial region northeast of the landfill. It is within approximately 0.95 to 1.05 miles northeast of the open face of the landfill and is among dirt, grass, shrubbery, hills, and mountains.

Odor

Other than three sampling events where a cherry odor could be detected, no other unusual smells were detected at this location.

Sampling Location 39: Ridgeline East

Location Description

Sampling location #39 is the east-most sampling location along the northeast ridgeline of the landfill at an elevation of 1330 feet and overlooks the commercial region northeast of the landfill and the post office. It is within approximately 1.10 to 1.20 miles northeast of the open face of the landfill and is among dirt, grass, shrubbery, hills, and mountains.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 40: Pipe Piles

Location Description

Sampling location #40 is located by a pile of pipes in the East Landfill section at an elevation of 1110 feet. It is within approximately 0.70 to 0.80 miles northeast of the open face of the landfill and is among dirt, grass, shrubbery, trees, hills, and mountains.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 41: Concrete Berm

Location Description

Sampling location #41 is located in the East Landfill region and is adjacent to the western border of the post office landfill at an elevation of 1100 feet. It is within approximately 0.90 to 1.00 miles northeast of the open face of the landfill and is among dirt, grass, shrubbery, hills, mountains, and motor vehicles.

Odor

A bakery odor could be detected at two sampling events. Other than this, no unusual smells were detected at sampling location #41.

Sampling Location 42: Post Office Overlook

Location Description

Sampling location #42 is located in the East Landfill region and directly overlooks the post office at an elevation of 1225 feet. It is within approximately 0.75 to 0.85 miles east or slightly northeast of the open face of the landfill and is among dirt, grass, shrubbery, trees, hills, and mountains.

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 43: Energy Plant

Location Description

Sampling location #43 is located in the Southeast Landfill Perimeter region and is adjacent to the energy plant at an elevation of 1200 feet. It is within approximately 0.45 to 0.55 miles east of the open face of the landfill and is among gravel and dirt roads, grass, shrubbery, trees, hills, mountains, and occasional motor vehicles.

Odor

Other than two sampling events where a faint trash odor could be detected, no unusual smells were detected at this location.

Sampling Location 44: Capped Prim. Cyn Landfill

Location Description

Sampling location #44 is located in the East Landfill region and is adjacent to the energy plant at an elevation of 1200 feet. It is within approximately 0.55 to 0.65 miles slightly southeast of the open face of the landfill and is among dirt, gravel, grass, shrubbery, trees, hills, and mountains

Odor

No odors believed to originate from the landfill, nor any unusual smells were detected at this location.

Sampling Location 45: Condensate

Location Description

Sampling location #45 is located in the Southeast Landfill Perimeter region at an elevation of approximately 1150 feet and is adjacent to the facility that extracts condensate. It is within approximately 0.35 to 0.45 miles slightly southeast of the open face of the landfill and is among dirt, gravel, grass, shrubbery, hills, and mountains.

Odor

A trash and condensate odor could be detected at almost every sampling event.

Sampling Location 46: Lot Near Face

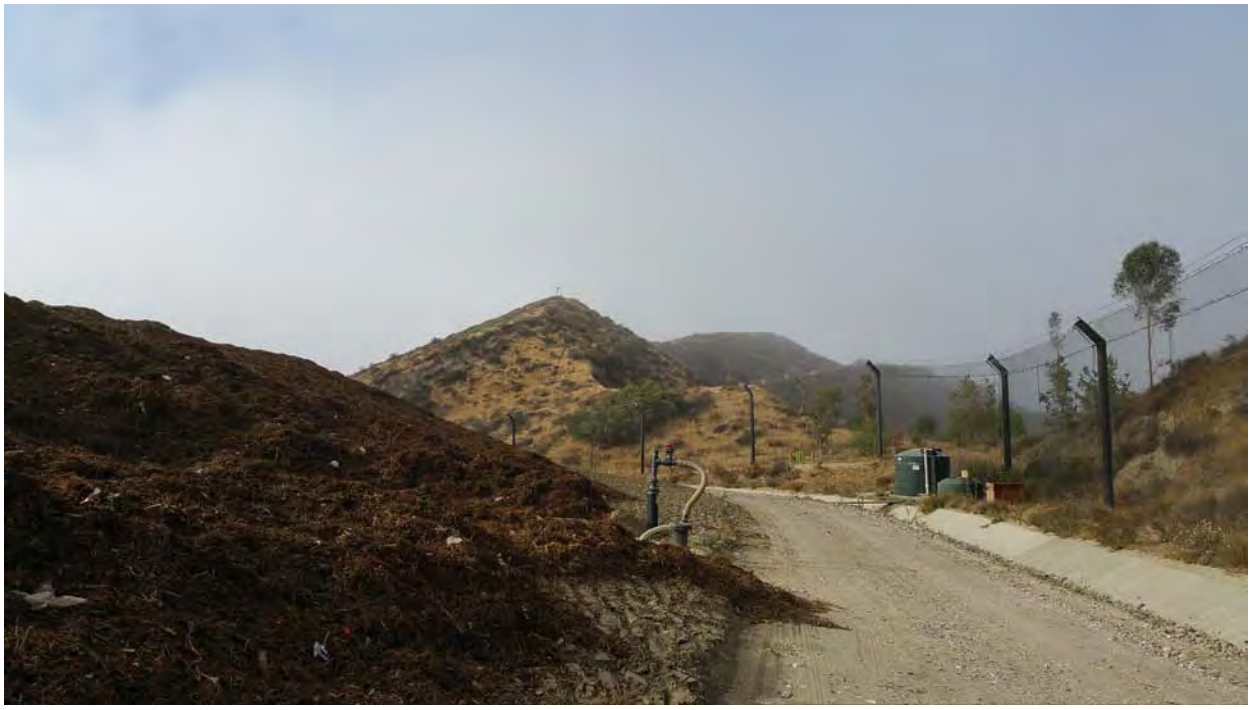
Location Description

Sampling location #46 is located in the Southeast Landfill Perimeter region at an elevation of approximately 1160 feet and is at the entry points to the working and open faces of the landfill. It is within approximately 0.30 to 0.40 miles slightly southeast of the open face of the landfill and is among dirt, gravel, and motor vehicles.

Odor

A mulch odor could be detected at four sampling events along with a faint trash odor at five sampling events. Other than these two instances, no unusual smells were detected at sampling location #46.

Sampling Location 47: Green Waste



Location Description

Sampling location #47 is located at any instances where there is fresh green waste, usually near the working face of the landfill at an elevation of approximately 1170 feet to 1200 feet. Green waste was not present at every sampling event. The location is usually right adjacent to or within approximately 0.05 miles of the open face of the landfill and is among dirt, gravel, motor vehicles, and trash.

Odor

Mulch was present fourteen times out of twenty-five sampling trips. Odors detected during these events included mulch and sweet trash.

Sampling Location 48 through 51: Faces 1 through 4

Location Description

Sampling locations #48 through #51 are located at various points around the working face of the landfill at elevations of approximately 1040 feet to 1180 feet. The points vary since the working face frequently changes. The four locations are carefully chosen to cover the entire perimeter of the working face of the landfill and are usually placed right adjacent to or within approximately 0.05 miles of the open face of the landfill and is among dirt, gravel, motor vehicles, and trash.

Odor

Odors described as sharp, strong, pungent, rancid, sweet, sour, trash, etc. were detected during all sampling events.

# Appendix C
# Description of Sampling Events and Weather Data

## Sampling Event 1 – April 7, 2015

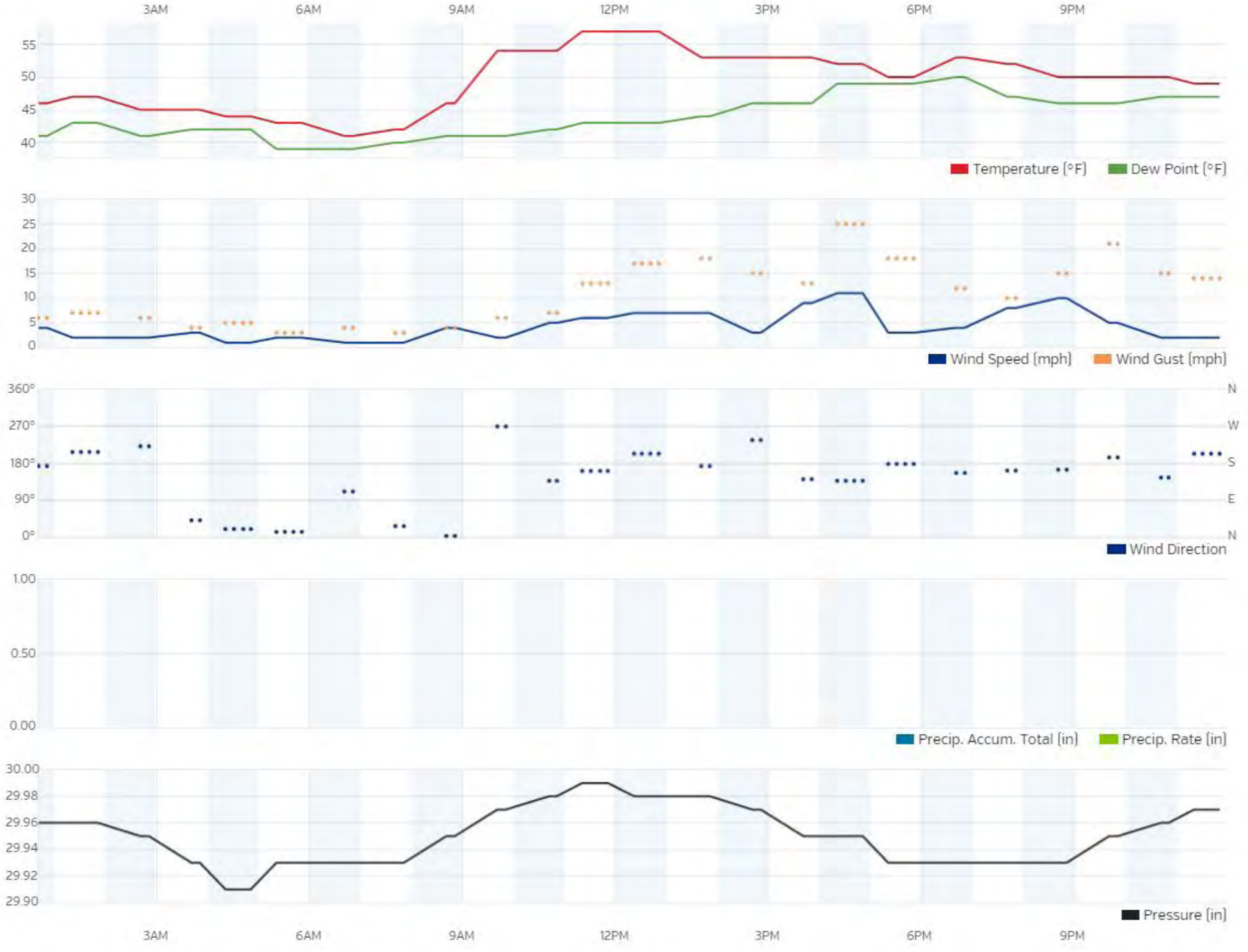
SWAPE first sampled around the Val Verde Community and Landfill on Wednesday, April 8th, 2015, between approximately 6:00 and 9:48 AM. Skies were mostly cloudy and temperatures ranged between about 41 to 54 degrees Fahrenheit. Humidity ranged from 91% at the start of sampling, to 64% when the last observation was taken. Barometric air pressures ranged between 29.93 and 29.98 inches. Winds were light, and originated from variable directions.

Throughout all locations, Parks and Fields/Nature were most common, followed by Spoiled Food/Decomposition and ND. Most Parks and Fields/Nature observations were recorded offsite with descriptors that mostly included ‘grass’, ‘fresh’, ‘hay’, ‘greenery’, ‘nature’, and more. Of the Spoiled Food/Decomposition-related observations, over three-quarters were recorded on the landfill. Of the offsite observations, none were recorded within the Val Verde Community. Spoiled Food/Decomposition descriptors mostly included ‘trash’, ‘sharp’, ‘rotten’, ‘garbage’, and more. Over one-half of NDs were recorded on the Landfill.

Offsite, D/T ranged from ND to 15. Hedonic tones noted at offsite locations ranged from -4 at Jackson Gate, up to 5 at the Post Office, Industry Drive, and Livingston/Watertank. Jackson Gate had a D/T of <2, within the Fecal and Parks and Fields/Nature Categories. The Post Office had D/Ts of 4, 7, and 15 within the Bakery Category. Industry Drive had D/Ts of ND, <2, and 7 within the ND, Parks and Fields/Nature, and Soapy Categories. Livingston/Watertank had D/Ts of <2, 2, and 7 within the Coffee Shop/Pleasant Flavors, Soapy, and Cleaning Solvents Categories. Overall, the highest noted odor offsite was equal to 15 at the Post Office, with a hedonic tone of -2 and descriptors of ‘cooked lamb’. The Average D/T and hedonic tone throughout the offsite Locations was 1.9 and 0.5, respectively.

On the landfill, D/Ts ranged from ND to 60. Over one-half of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from -9 to 4, with the most negative (-4 to -9) being observed mostly around the Working Face Locations. D/Ts at or near the Working Face ranged between 4 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Fecal, and Sulfur/Cabbage/Garlic, with descriptors such as ‘trash’, ‘landfill’, ‘sweet trash’, ‘rotten’, and more. Hedonic tones at the Working Face ranged between -2 and -9. Other locations onsite and not immediately near the Working Face were described within the Spoiled Food/Decomposition, Parks and Fields/Nature, ND, Fragrant/Fruity, Dusty/Earthy, Coffee Shop/Pleasant Flavors, Cleaning Solvents, and Auto Exhaust Categories. The highest D/T recorded other than locations at or near the Working Face was equal to 30 at the Condensate Tank with descriptors including ‘trash’, ‘landfill’, and ‘sweet’. The Average D/T and hedonic tone throughout the Landfill was 13.2 and -2.3, respectively.

Weather History Graph
April 7, 2015



## Sampling Event 2 – April 8, 2015

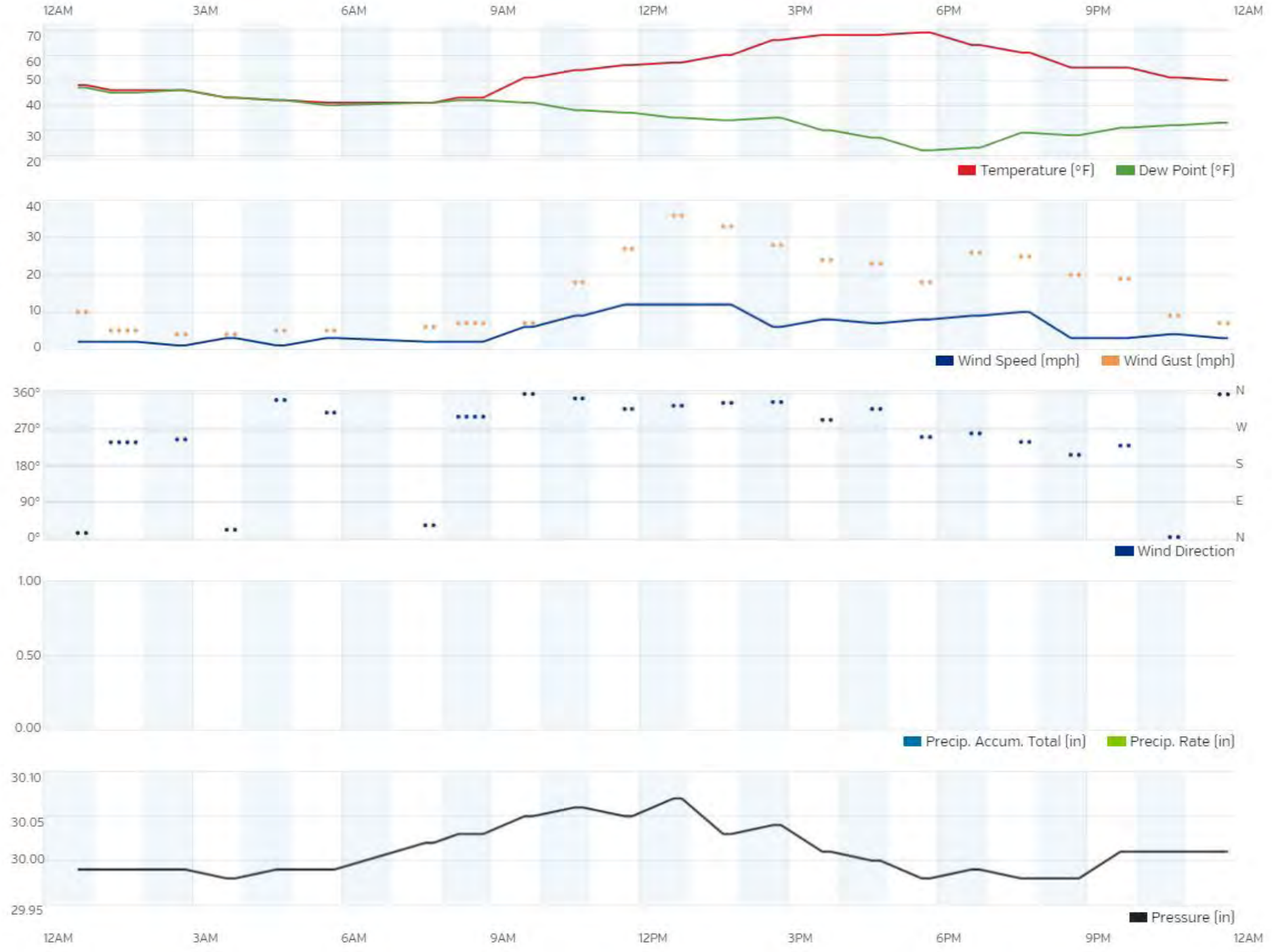
The second sampling event on Wednesday, April 8, 2015 took place between approximately 6:00 and 9:48 AM. Skies were mostly clear to partly cloudy, and temperatures ranged between 39 and 55 degrees Fahrenheit. Humidity ranged from 96% at the start of sampling, to 58% when the last observation was taken. Barometric air pressures ranged between 30.08 and 30.13 inches. Winds were calm to light and originated from variable directions.

Throughout all Locations, descriptors related to Parks and Fields/Nature were detected most, followed by Spoiled Food/Decomposition and ND. More than half of the Parks and Fields/Nature observations were recorded on the Landfill and included descriptors such as ‘grass’, ‘hay’, and ‘wet grass’. Of all Spoiled Food/Decomposition-related observations, approximately one-half were detected on the Landfill and one-half offsite. Of the offsite observations, approximately half were in the Val Verde Community. The Spoiled Food/Decomposition descriptors include ‘faint trash’, ‘grass’, ‘sweet trash’, ‘mulch’, and more. Most NDs were detected offsite.

Offsite, D/Ts ranged from ND to 15. Hedonic tones noted at offsite locations ranged from -3 at Jackson Gate, up to 5 at Liverpool Court. Jackson Gate had D/Ts of 2 and 4 with Fecal descriptors such as ‘farm’, ‘manure’, and ‘poultry’. Liverpool Court had D/Ts of <2 and 2 with Fragrant/Fruity and Soapy descriptors such as ‘soap’, ‘sweet honey’, and ‘honeysuckle’. Overall, the highest noted odor offsite was equal to 15 at Fire Center Road with a D/T of 14, descriptors of ‘faint trash’, and a hedonic tone of -2. The Average D/T and hedonic tone throughout the offsite Locations was 1.4 and 0.2, respectively.

Onsite, the landfill, D/Ts ranged from ND to 60. Over three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from -9 to 2, with the most negative (-4 to -9) being primarily observed around the Working Face Locations. D/Ts at or near the Working Face ranged between <2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Parks and Fields/Nature, Musty/Moldy Compost, and Sulfur/Cabbage/Garlic, with descriptors such as ‘trash’, ‘mulch’, ‘rotten’, ‘sweet’, ‘grass’, and more. Hedonic tones at the Working Face ranged between -1 and -9. Other locations onsite and not immediately near the Working Face were described within the Spoiled Food/Decomposition, Parks and Fields/Nature, ND, Musty/Moldy Compost, Fecal, Soapy, and Auto Exhaust Categories. The highest D/T recorded other than locations at or near the Working Face was equal to 7 at the Lot Near Face. The Average D/T and hedonic tone throughout the Landfill was 9.6 and -1.0, respectively.

Weather History Graph
April 8, 2015



## Sampling Event 3 – April 9, 2015

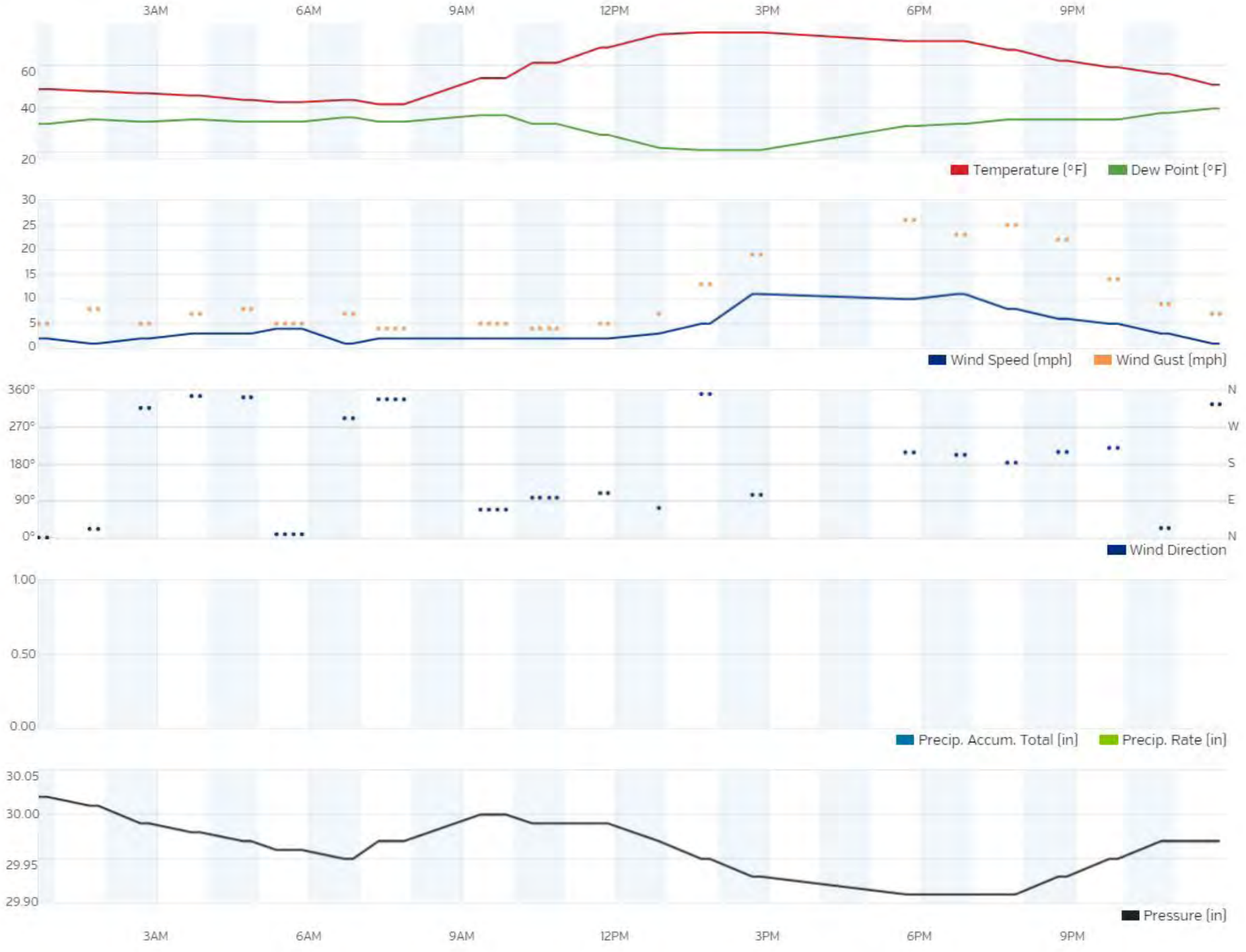
The third sampling event on Thursday, April 9th, 2015, took place between approximately 6:10 and 9:58 AM. Skies were _mostly clear to overcast, and temperatures ranged between about 43 to 54 degrees Fahrenheit. Humidity ranged from 71% at the start of sampling, to 52% when the last observation was taken. Barometric air pressure rose from 29.96 to 30 inches. Winds were light, and originated from the west-northwest, north-northwest, north, and east-northeast.

Descriptors related to Parks and Fields/Nature were most common, followed by Non-Detects, and Fecal. Descriptors categorized as Parks and Fields/Nature were noted in most locations on and off the Landfill. These descriptors include ‘clean’, ‘grass’, ‘sage’, and ‘hay’. Most Fecal odors were detected in the Val Verde Community. Roughly one-third of NDs were noted on the Landfill Property.

Offsite, D/T ranged from non-detect (ND) up to 4 throughout the Val Verde community and other areas outside the Landfill. Hedonic tones noted at offsite locations ranged from negative three at Jackson Gate and Del Valle/Halsey Canyon Locations (Fecal descriptors of manure, chicken poop, and farm) up to positive four at the Liverpool Court and Livingston/Watertank Locations, which were described with ‘fresh, soapy, clean’ and ‘artificial sweetness’. Locations with unpleasant Fecal odors were noted to have D/Ts of <2 and 2. Liverpool Court and Livingston/Watertank had recorded D/Ts between <2 and 4. The highest noted odors were equal to 4 D/T and were recorded at Livingston/Watertank and Hunstock/Lincoln. Livingston/Watertank descriptors fell under Parks and Fields/Nature and Coffee Shop/Pleasant Flavors. Hunstock/Lincoln had a Fecal descriptor, with a hedonic tone of <1. The Average D/T and hedonic tone throughout the offsite Locations was 1 and 0.3, respectively.

Onsite, D/Ts ranged from ND to 60. The majority of observations on the Landfill noted odors lesser than or equal to 7 D/T. Observations of hedonic tone ranged from positive four to negative eight, with the most negative hedonic tones being noted at or near the Working Face. D/T at and near the Working Face ranged between <2 through 60. Other locations onsite and not immediately near the Working Face were described with Dusty/Earthy, Parks and Fields/Nature, Spoiled Food/Decomposition, ND, Auto Exhaust, and Sulfur/Cabbage/Garlic. Less than one-fourth of observations made in the other locations throughout the Landfill were identified to be Landfill waste-related. The Average D/T and hedonic tone throughout the Landfill was 12.5 and -1.1, respectively.

Weather History Graph
April 9, 2015



## Sampling Event 4 – April 14, 2015

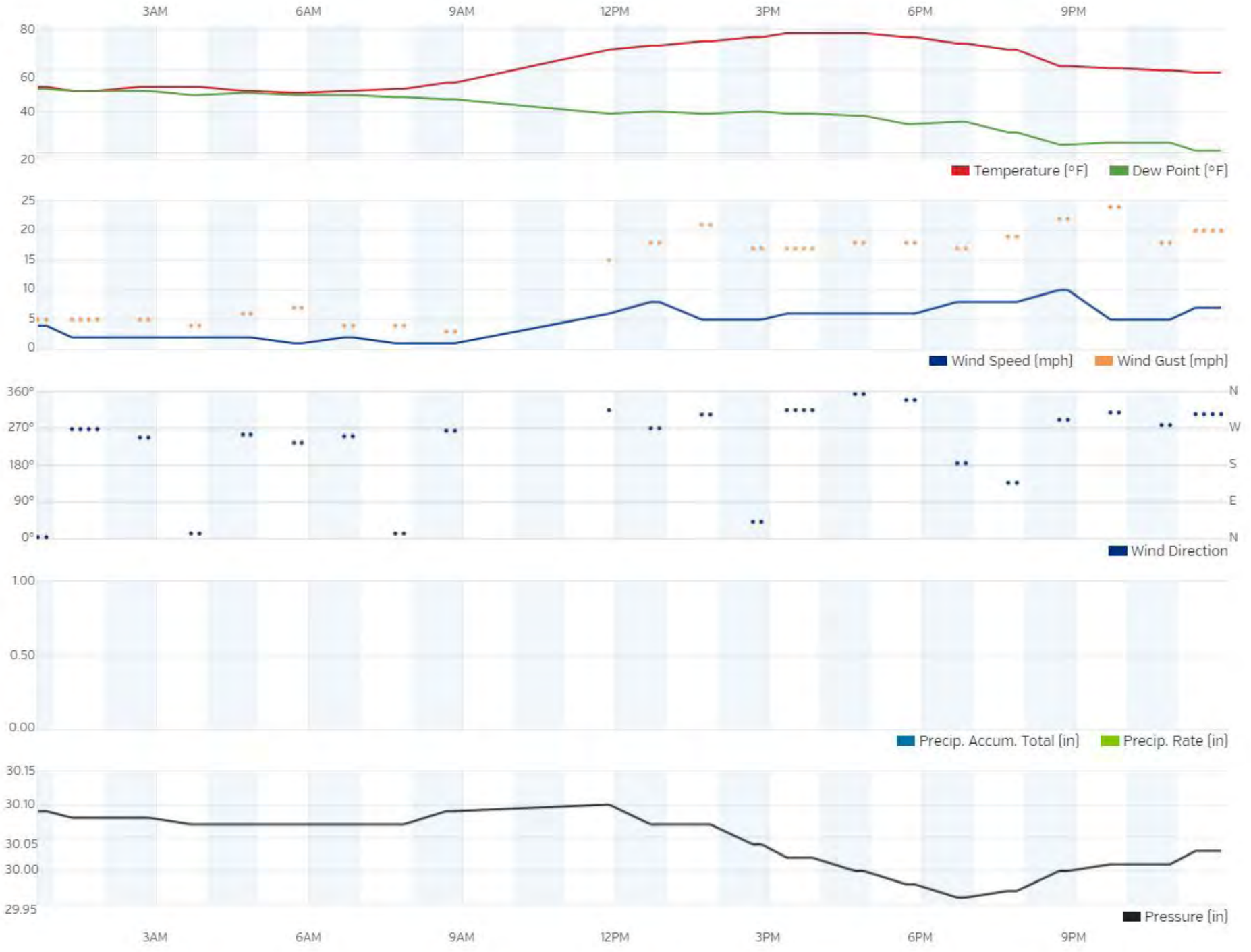
The fourth sampling event on Tuesday, April 14th, 2015, took place between approximately 6:14 and 9:57AM. Skies were mostly clear to hazy, and temperatures ranged between about 49 to 54 degrees Fahrenheit. Humidity ranged from 98% at the start of sampling, to 74% when the last observation was taken. Barometric air pressures ranged between 30.07 and 30.09 inches. Winds were light, and originated from the west-southwest, southwest, west, and north-northeast.

Throughout all Locations, Spoiled Food/Decomposition were most common, followed by Parks and Fields/Nature and ND. Approximately two-thirds of all NDs were offsite. Of all Spoiled Food/Decomposition-related observations, over three-quarters were recorded on the Landfill. Of those recorded offsite, none were recorded over a <2 D/T. Spoiled Food/Decomposition descriptors include ‘trash’, ‘sour’, ‘rotten’, ‘leachate’, and more. Most Parks and Fields/Nature observations were recorded offsite, with descriptors such as ‘grass’, ‘hay’, ‘sweet’, ‘spicy’, and more.

Offsite, D/Ts ranged from ND to 4. Hedonic tones noted at offsite locations ranged from -3 at Jackson Gate, up to 4 at Liverpool Court. Jackson Gate had had Fecal descriptors of ‘farm’, ‘barnyard’, ‘chicken’, and ‘manure’, with D/Ts of <2 and 4. Liverpool Court had Fragrant/Fruity descriptors of ‘sweet’, ‘flowery’, and ‘honeysuckle’, with D/Ts of 2 and 4. Overall, the highest noted odor offsite was equal to 4 at Jackson Gate, Liverpool Court, Livingston/Watertank, and Post Office. The Average D/T and hedonic tone throughout the offsite Locations was 0.9 and 0.2, respectively.

On the landfill, D/Ts ranged from ND to 60. About three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from -10 to 3, with the most negative (-4 to -10) being primarily observed around the Working Face Locations. D/Ts at or near the Working Face ranged between <2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Musty/Moldy Compost, and Fishy/Ammonia, with descriptors such as ‘trash’, ‘manure’, ‘pungent’, ‘rotten’, and more. Hedonic tones at the Working Face ranged between -1 and -10. Other locations onsite and not immediately near the Working Face were described within the ND, Spoiled Food/Decomposition, Parks and Fields/Nature, Soapy, Cleaning Solvents, Musty/Moldy Compost, Auto Exhaust, Coffee Shop/Pleasant Flavors, and Dusty/Earthy Categories. The highest D/T recorded other than locations at or near the Working Face was equal to 30 at the Condensate Tank with descriptors of ‘trash’, ‘sharp’, ‘sweet’, and ‘leachate’. The Average D/T and hedonic tone throughout the Landfill was 10 and -2.0, respectively.

Weather History Graph
April 14, 2015



## Sampling Event 5 – April 15, 2015

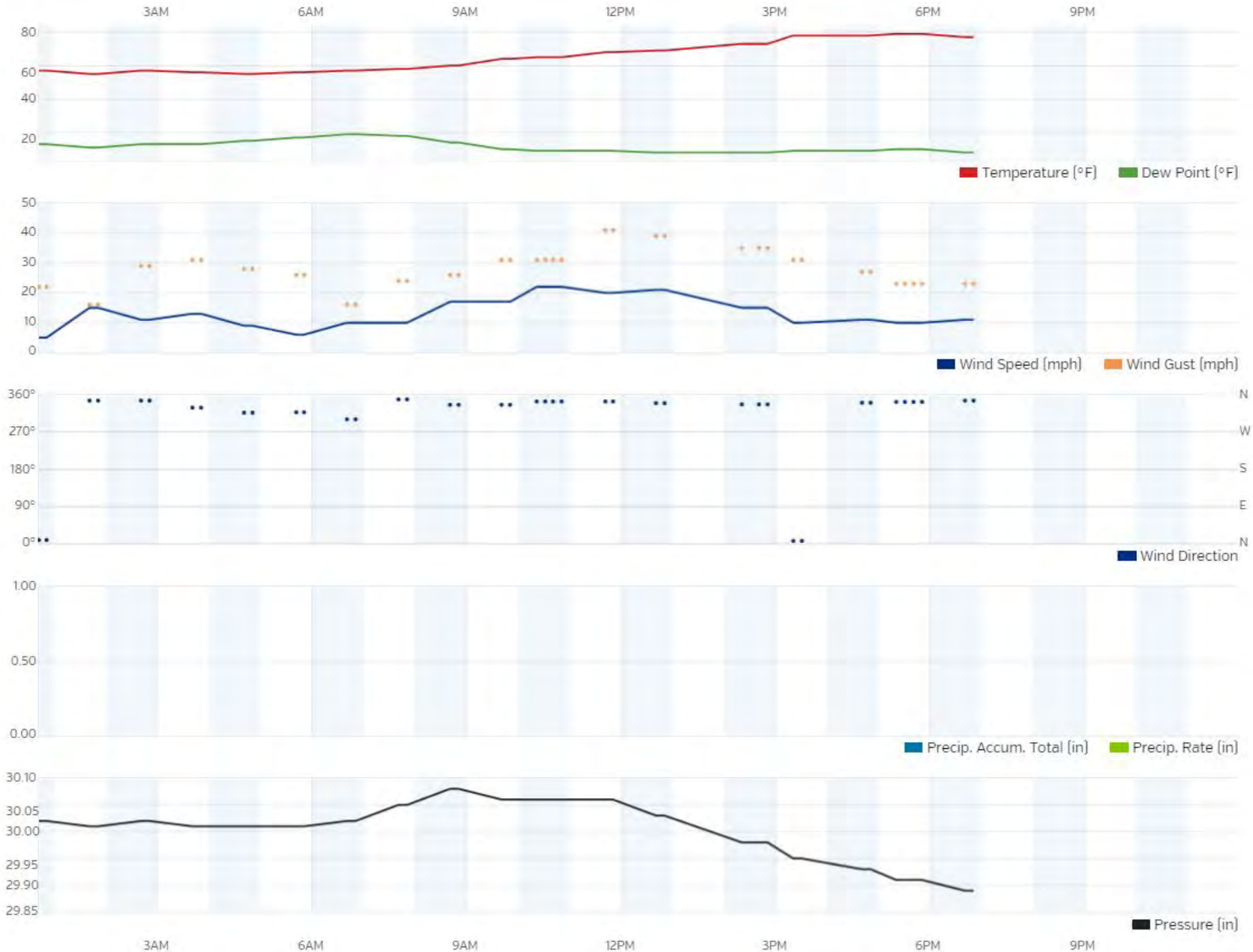
The fifth sampling event on Wednesday, April 15th, 2015, took place between approximately 7:08 and 10:23 AM. Skies were mostly sunny to hazy, and temperatures ranged between about 57 to 65 degrees Fahrenheit. Humidity ranged from 22% at the start of sampling, to 11% when the last observation was taken. Barometric air pressures ranged between 30.02 and 30.06 inches. Winds were moderate and high from the west-northwest, north-northwest, and north.

Throughout all Locations, NDs were most common, followed by Parks and Fields/Nature and Spoiled Food/Decomposition. Over one-half of all NDs were recorded offsite. Over one-half of Parks and Fields/Nature observations were recorded offsite. Parks and Fields/Nature descriptors mostly include ‘grass’, ‘hay’, and ‘sage’. Of the Spoiled Food/Decomposition-related observations, most were recorded on the landfill and none were recorded specifically within the Val Verde Community. Spoiled Food/Decomposition descriptors mostly included ‘trash’, ‘mulch’, ‘rotten’, ‘sour’, and more.

Offsite, D/Ts ranged from ND to 7. Hedonic tones noted at offsite locations ranged from -4 at Chiquito Canyon South, up to 2 at Chiquito Canyon/Central. Chiquito Canyon South had D/Ts of 2 and 7 and had Spoiled Food/Decomposition descriptors of ‘mulch’, ‘trash’, and more. Chiquito Canyon/Central had D/Ts of <2 and had Fragrant/Fruity descriptors of ‘flowers’ and ‘faint roses’. Overall the highest noted odor offsite was equal to 7 at Chiquito Canyon South. The Average D/T and hedonic tone throughout the offsite Locations was 0.6 and 0.06, respectively.

On the landfill, D/Ts ranged from ND to 60. Over three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from -8 to 4, with the most negative (-4 to -8) being primarily observed around the Working Face Locations. D/Ts at or near the Working Face ranged between 2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Musty/Moldy Compost, Sulfur/Cabbage/Garlic, and Fishy/Ammonia, with descriptors such as ‘trash’, ‘rotten egg’, ‘mulch’, and ‘sour’. Hedonic tones at the Working Face Ranged between -1 and -8. Other locations onsite and not immediately near the Working Face were described within the Spoiled Food/Decomposition, Musty/Moldy Compost, Parks and Fields/Nature, ND, Soapy, Auto Exhaust, Coffee Shop/Pleasant Flavors, and Sulfur/Cabbage/Garlic Categories. The highest D/T recorded other than locations at or near the Working Face was equal to 7 at Fire Center Overlook and Lot Near Face. The Average D/T and hedonic tone throughout the Landfill was 8.6 and -1.1, respectively.

Weather History Graph
April 15, 2015



## Sampling Event 6 – April 16, 2015

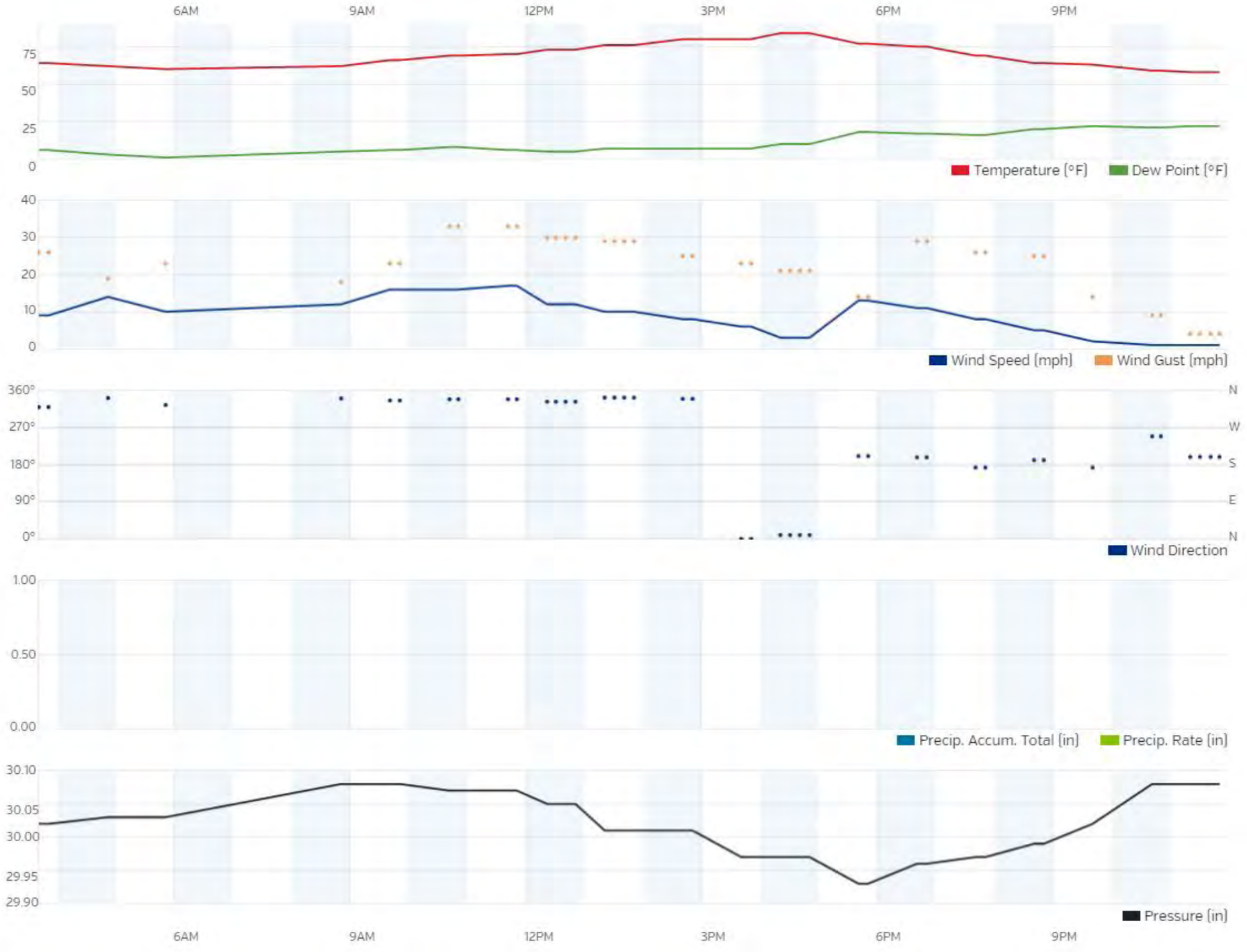
The sixth sampling event on Thursday, April 16th, 2015, took place between approximately 6:13 and 9:33 AM. Skies were mostly clear and temperatures ranged between 60 and 66 degrees Fahrenheit. Humidity maintained at 9% at the start of sampling and when the last observation was taken. Barometric air pressures ranged between 30.03 and 30.08 inches. Winds were moderate to strong, and originated from the north-northwest and northwest directions.

Throughout all Location, NDs were most common, followed by Parks and Fields/Nature and Spoiled Food/Decomposition. Approximately three-quarters of the NDs recorded were offsite. Parks and Fields/Nature descriptors mostly included ‘grass’, ‘sage’, ‘hay’, and more. Of all Parks and Fields/Nature detected, most were recorded offsite. Of the Spoiled Food/Decomposition-related observations, all were detected on the Landfill. Spoiled Food/Decomposition descriptors mostly included ‘trash’, ‘mulch’, ‘sweet’, ‘sour’, ‘leachate’, and more.

Offsite, D/Ts ranged from ND to 4. Hedonic tones noted at offsite locations ranged from -3 at Jackson Gate (Fecal descriptors of ‘chicken’, ‘farm’, and ‘manure’), up to a 3 at Liverpool Court and Livingston/Watertank (Fragrant/Fruity and Bakery descriptors of ‘honeysuckle’, ‘bakery’, ‘donuts’, and ‘sweet’). On this sampling trip, Jackson Gate had D/Ts of 2 and 4, Liverpool Court had D/Ts of <2 and 2, and Livingston/Watertank had D/Ts of <2 and 2. The highest noted odors offsite were equal to 4 D/T at Jackson Gate and had Fecal descriptors of ‘poultry’, ‘manure’, and ‘farm’. The Average D/T and hedonic tone throughout the offsite Locations was 0.6 and 0.3, respectively.

Onsite, D/Ts ranged from ND to 60. Observations of hedonic tone ranged from -9 to 4. D/Ts at or near the Working Face ranged between <2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Musty/Moldy Compost, Sulfur/Cabbage/Garlic, Dusty/Earthy, and Cleaning Solvents, with descriptors such as ‘rotten grass’, ‘trash’, ‘mulch’, ‘sour’, and more. Hedonic tones at the Working Face ranged between -1 and -9. Other locations onsite and not immediately near the Working Face were described within ND, Parks and Fields/Nature, Spoiled Food/Decomposition, Fishy/Ammonia, Musty/Moldy Compost, Dusty/Earthy, Coffee Shop/Pleasant Flavors, and Soapy Categories. The highest D/T recorded other than locations at or near the Working Face was equal to 60 at the Condensate Tank with descriptors of ‘rancid/sweet’, ‘condensate’, ‘acidic’, and ‘sour’. The Average D/T and hedonic tone throughout the Landfill was 10.1 and -1.1, respectively.

Weather History Graph
April 16, 2015



## Sampling Event 7 – April 17, 2015

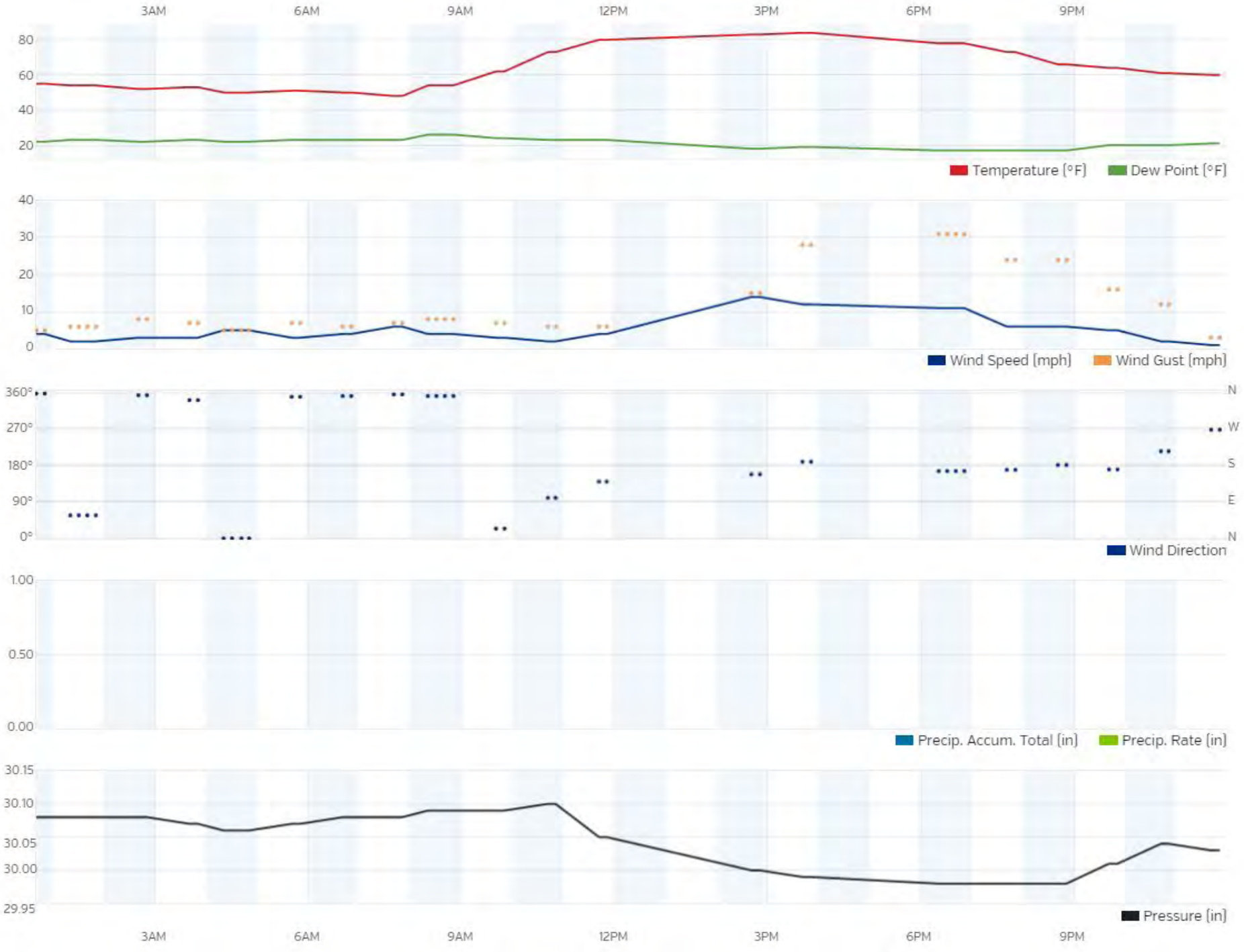
The seventh sampling event on Friday, April 17th, 2015 took place between approximately 6:15 and 9:36 AM. Skies were mostly clear and temperatures ranged between 51 and 62 degrees Fahrenheit. Humidity ranged from 33% at the start of sampling, to 23% when the last observation was taken. Barometric air pressures ranged between 30.07 and 30.09 inches. Winds were light to moderate and originated from the north-northeast and north directions.

Throughout all Locations, Parks and Fields/Nature were most common, followed by ND and Spoiled Food/Decomposition. More than one-half of the Parks and Fields/Nature recorded were offsite. Parks and Fields/Nature descriptors mostly included ‘grass’, ‘sage’, ‘sour grass’, ‘sweet grass’, and ‘hay’. Of all NDs, most were detected on the Landfill. Of the Spoiled Food/Decomposition-related observations, all were detected on the Landfill. Spoiled Food/Decomposition descriptors mostly included ‘trash’, ‘sweet’, ‘rotten’, ‘manure’, ‘sour’, and more.

Offsite, D/T ranged from ND to 4. Hedonic tones noted at offsite locations ranged from -3 at Jackson Gate, Del Valle/Halsey Canyon, and Industry Drive, up to 3 at Livingston/Watertank and Franklin. Locations with a hedonic tone of -3 had at highest, a D/T of 4 and fell in the Fecal descriptor category. Locations with a hedonic tone of 3 had at highest, a D/T of <2 and fell in the Fragrant/Fruity descriptor category. Overall, the highest noted odor offsite was equal to 4 at Jackson Gate with a hedonic tone of -3 and descriptors of ‘manure’, ‘hay’, and ‘farm’. The Average D/T and hedonic tone throughout the offsite Locations was 0.9 and 0.1, respectively.

On the landfill, D/Ts ranged from ND to 60. Over three-quarter of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from -9 to 2, with the most negative (-4 to -9) being only observed around the Working Face Locations. D/Ts at or near the Working Face ranged between 2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Sulfur/Cabbage/Garlic, Fishy/Ammonia, and Fecal, with descriptors such as ‘trash’, ‘manure’, ‘rotten’, ‘sour’, ‘rancid’, ‘fishy’, and more. Hedonic tones at the Working Face ranged between -1 and -9. Other locations onsite and not immediately near the Working Face were described within the Spoiled Food/Decomposition, ND, Parks and Fields/Nature, Coffee Shops/Pleasant Flavors, Fragrant/Fruity, Dusty/Earthy, Cleaning Solvents, and Auto Exhaust Categories. The highest D/T recorded other than locations at or near the Working Face was equal to 2 at various locations. The Average D/T and hedonic tone throughout the Landfill was 11.3 and -1.0, respectively.

Weather History Graph
April 17, 2015



## Sampling Event 8 – April 28, 2015

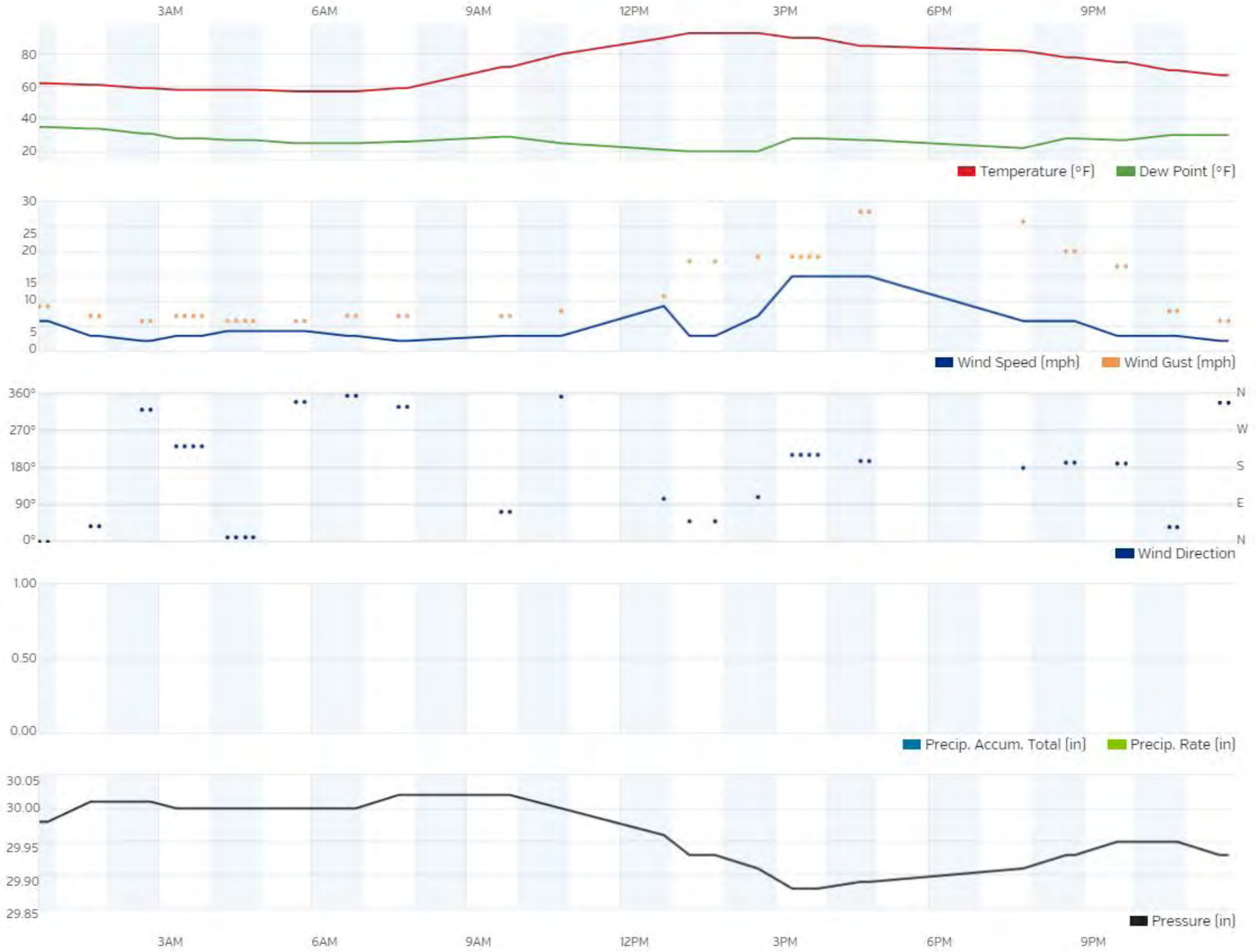
The eighth sampling event on Tuesday, April 28th, 2015 took place between approximately 6:05 and 9:28 AM. Skies were mostly clear and temperatures ranged between 57 and 72 degrees Fahrenheit. Humidity ranged from 25% at the start of sampling, to 29% when the last observation was taken. Barometric air pressures ranged between 30 and 30.02 inches. Winds were light and originated from the north-northwest, north, and east-northeast directions.

Throughout all Locations, Parks and Fields/Nature were most common, followed by ND and Spoiled Food/Decomposition. More than one-half of the Parks and Fields/Nature recorded were offsite. Parks and Fields/Nature descriptors mostly included ‘grass’, ‘sage’, ‘sour grass’, ‘sweet grass’, and ‘hay’. Of all NDs, most were detected offsite. Of the Spoiled Food/Decomposition-related observations, most were detected on the Landfill. Two observations were detected in the Val Verde Community. Spoiled Food Decomposition descriptors mostly included ‘trash’, ‘sour’, ‘mulch’, and were observed no higher than a D/T of <2 offsite.

Offsite, D/T ranged from ND up to 4. Hedonic tones noted at offsite locations ranged from -4 at Jackson Gate and Del Valle/Halsey Canyon, up to 3 at Liverpool Court. Jackson Gate and Del Valle/Halsey Canyon had D/Ts of 2 and 4 with descriptors of ‘farm animal’ and ‘manure’. Odor at Liverpool Court was described as ‘floral’ and had D/Ts of <2. The Average D/T and hedonic tone throughout the Landfill was 9.5 and -1.1, respectively.

Onsite, D/Ts ranged from ND to 60. Over three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from -7 to 3, with the most negative (-4 to -7) being primarily around the Working Face Locations. D/Ts at or near the Working Face ranged between 2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Musty/Moldy Compost, and Fishy/Ammonia, with descriptors such as ‘trash’, ‘mulch’, ‘seafood’, ‘rotten egg’, ‘sour trash’, and more. Hedonic tones at the Working Face ranged between -1 and -7. No Green Waste was apparent at this day. Other locations onsite and not immediately near the Working Face were described within the ND, Spoiled Food/Decomposition, Dusty/Earthy, Parks and Fields/Nature, Soapy, Musty/Moldy Compost, Coffee Shop/Pleasant Flavors, Bakery, Cleaning Solvents, and Auto Exhaust. The highest D/T recorded other than locations at or near the Working Face was equal to 7 at the Fire Center Overlook with descriptors including ‘trash’ and ‘sweet’. The Average D/T and hedonic tone throughout the offsite Locations was 0.8 and -0.3, respectively.

Weather History Graph
April 28, 2015



## Sampling Event 9 – April 29, 2015

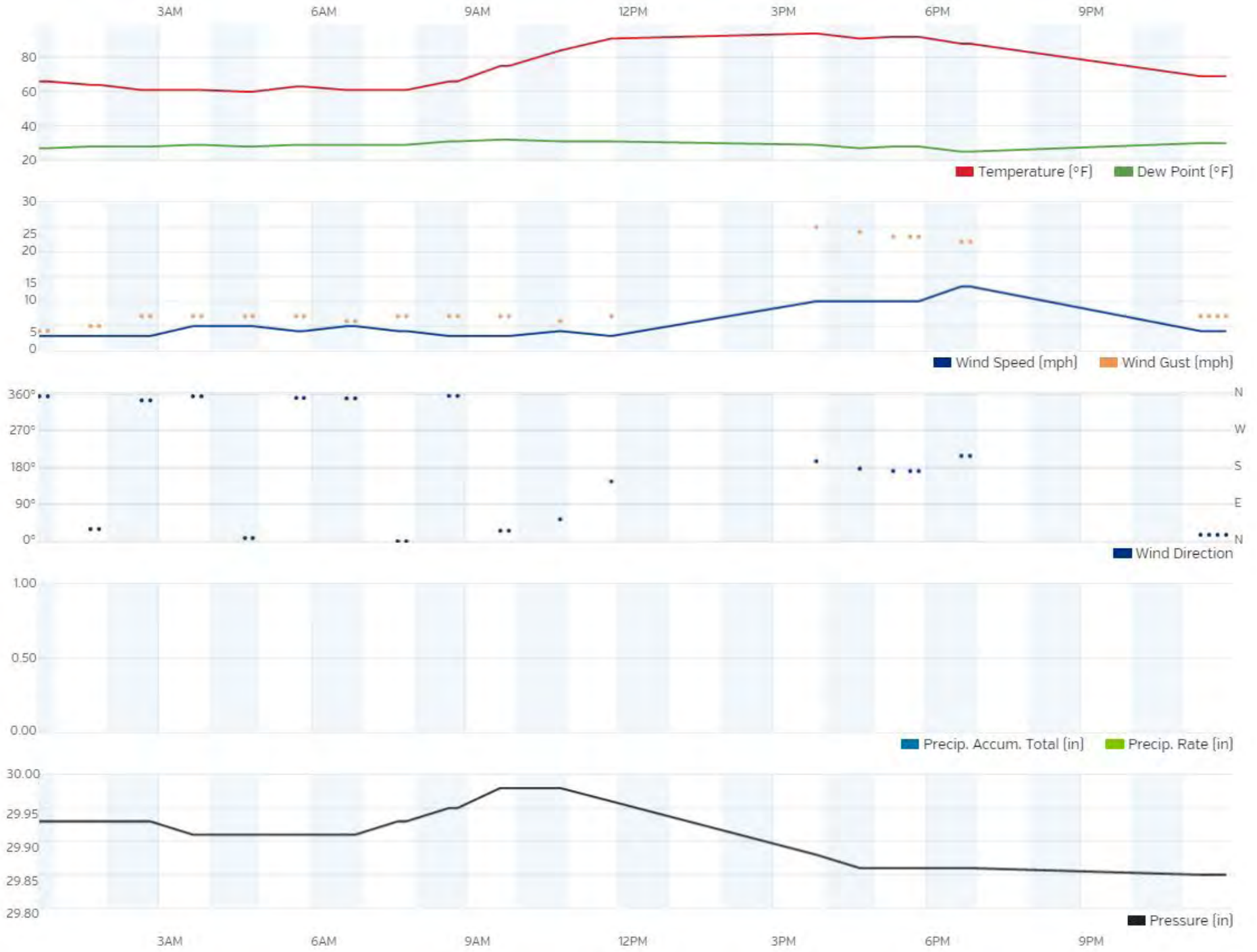
The ninth sampling event on Wednesday April 29th, 2015 took place between approximately 6:11 and 9:38 AM. Skies were mostly clear and temperatures ranged between 63 and 75 degrees Fahrenheit. Humidity ranged from 28% at the start of sampling, to 21% when the last observation was taken. Barometric air pressures ranged between 29.91 and 29.98 inches. Winds were light and originated from the north and north-northeast directions.

Throughout all Locations, NDs were most common, followed by Parks and Fields/Nature and Spoiled Food/Decomposition. Over one-half of NDs were recorded offsite. Of the offsite NDs, over half were recorded in the Val Verde Community. Parks and Fields/Nature descriptors mostly included 'grass', 'hay', 'sweet', 'sour', and more. Over half of all Parks and Fields/Nature descriptors were detected offsite. Of the Spoiled Food/Decomposition-related observations, all were recorded on the Landfill and none in the Community. Spoiled Food/Decomposition descriptors mostly included 'trash', 'sour', 'leachate', 'rotten egg', and more.

Offsite, D/Ts ranged from ND up to 7. Hedonic tones noted at offsite locations ranged from -5 at Jackson Gate, up to 3 at the Post Office. Jackson Gate was noted to have Fecal descriptors of 'farm animals', 'manure', and 'poultry' with D/Ts of 2, 4, and 7. The Post Office was noted to have Bakery descriptors of 'pretzel', 'sweet', and 'bakery', with D/Ts of <2 and 4. Overall, the highest noted odor offsite was equal to 7 D/T at Jackson Gate (hedonic tone of -4) with descriptors of 'farm', 'manure', and 'poultry'. The Average D/T and hedonic tone throughout the offsite Locations was 0.9 and -0.2, respectively.

Onsite, D/Ts ranged from ND to 60. About three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from -7 to 2, with the most negative (-4 to -7) primarily being around the Working Face Locations. D/Ts at or near the Working Face ranged between 4 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Musty/Moldy Compost, and Sulfur/Cabbage/Garlic, with descriptors such as 'trash', 'sour', 'rotten', 'rotten egg', and more. Hedonic tones at the Working Face ranged between -3 and -7. No Green Waste was apparent at this day. Other locations onsite and not immediately near the Working Face were described within the Spoiled Food/Decomposition, ND, Parks and Fields/Nature, Cleaning Solvents, and Bakery Categories. The highest D/T recorded at places other than locations at or near the Working Face was equal to 2 at various locations. The Average D/T and hedonic tone throughout the Landfill was 6.3 and -1.5, respectively.

Weather History Graph
April 29, 2015



## Sampling Event 10 – May 12, 2015

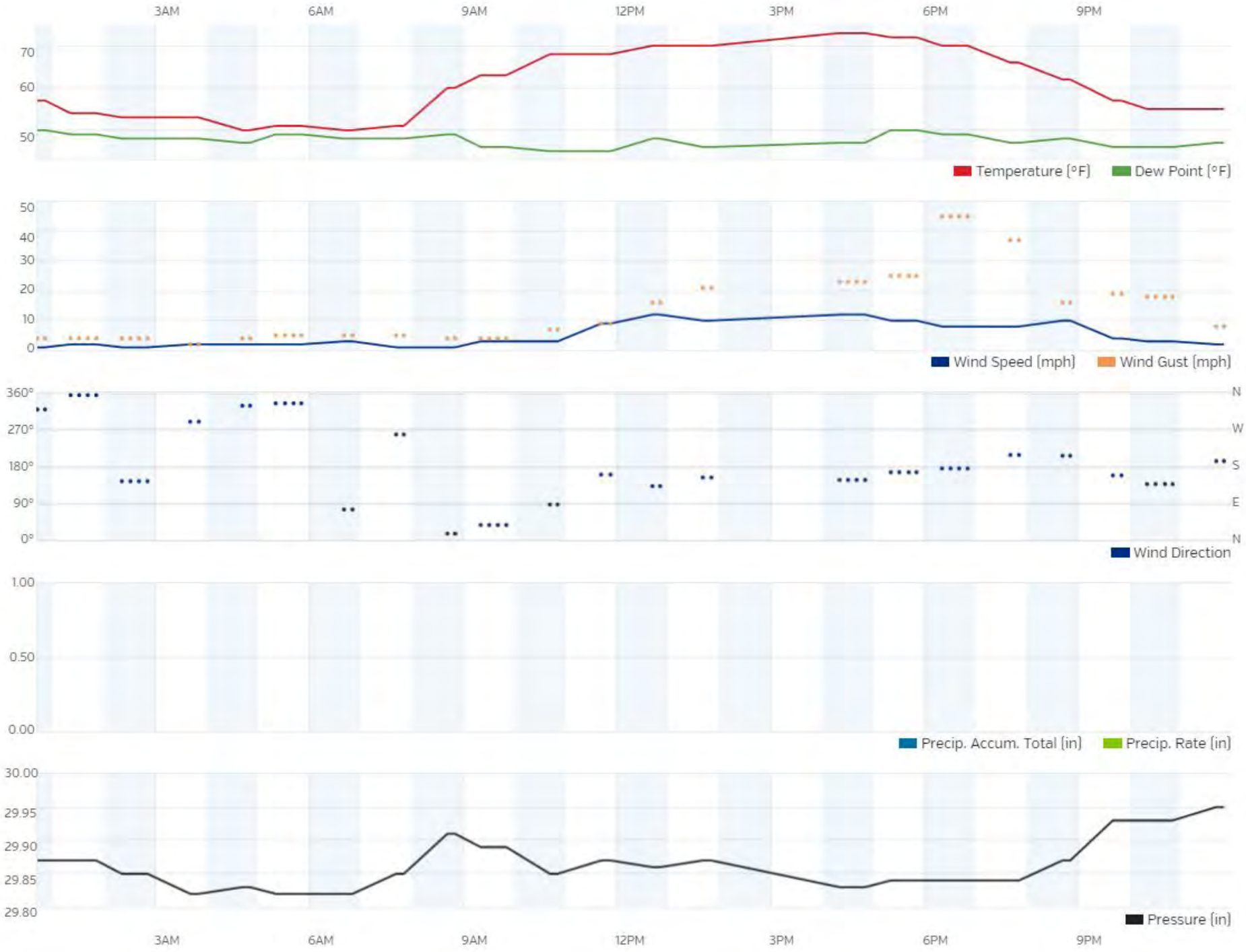
The tenth sampling event on Tuesday May 12th, 2015 took place between approximately 6:15 and 9:40 AM. Skies were mostly clear and temperatures ranged between 51 and 63 degrees Fahrenheit. Humidity ranged from 93% at the start of sampling, to 54% when the last observation was taken. Barometric air pressures ranged between 29.82 and 29.89 inches. Winds were light and originated from the north-northwest, east-northeast, west, north-northeast, and northeast directions.

Throughout all Locations, Parks and Fields/Nature were most common, followed by NDs and Spoiled Food/Decomposition. Over one-half of the Parks and Fields/Nature observations were recorded offsite, and half of those in the Val Verde Community. Descriptors associated with Parks and Fields/Nature included ‘hay, ‘grass’, and ‘sage’. Over one-half of all NDs were observed offsite. Of the Spoiled Food/Decomposition-related observations, most were recorded on the landfill. Of the offsite odors, none were detected in the Val Verde Community. Spoiled Food/Decomposition descriptors mostly included ‘trash’, ‘leachate’, ‘sour trash’, ‘sweet trash’, and more.

Offsite, D/Ts ranged from ND to 7. Hedonic tones noted at offsite locations ranged from -4 at Jackson Gate and Livingston/Watertank, up to 4 at Hunstock/Lincoln. Jackson Gate had Fecal descriptors of ‘farm’, ‘manure’, and ‘hay’ with D/Ts of 2, 4, and 7. Livingston/Watertank had Spoiled Food/Decomposition descriptors of ‘sour trash’, ‘leachate’, and ‘sage’ with D/Ts of 2 and 4. Hunstock/Lincoln had D/Ts of <2, 2, and 7 with a descriptors of ‘floral’, ‘wet grass’, and ‘hay’. The Average D/T and hedonic tone throughout the offsite Locations was 1.2 and -0.2, respectively.

Onsite, D/Ts ranged from ND to 60. Over three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from -7 to 3, with the most negative (-4 to -7) primarily being around the Working Face Locations. D/Ts at or near the Working Face ranged between <2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition and Musty/Moldy Compost, with descriptors including ‘trash’, ‘leachate’, ‘sour’, ‘mulch’, and more. Hedonic tones at the Working Face ranged between -1 and -7. Other locations onsite and not immediately near the Working Face were described within the Spoiled Food/Decomposition, ND, Parks and Fields/Nature, Musty/Moldy Compost, Bakery, Sulfur/Cabbage/Garlic, Cleaning Solvents, and Auto Exhaust Categories. The highest D/T recorded at locations other than those at or near the working face was equal to 7 at the Odor System and Condensate Tanks with descriptors of ‘trash’ and ‘leachate’, respectively. The Average D/T and hedonic tone throughout the Landfill was 4.3 and -1.1, respectively.

Weather History Graph
May 12, 2015



## Sampling Event 11 – May 13, 2015

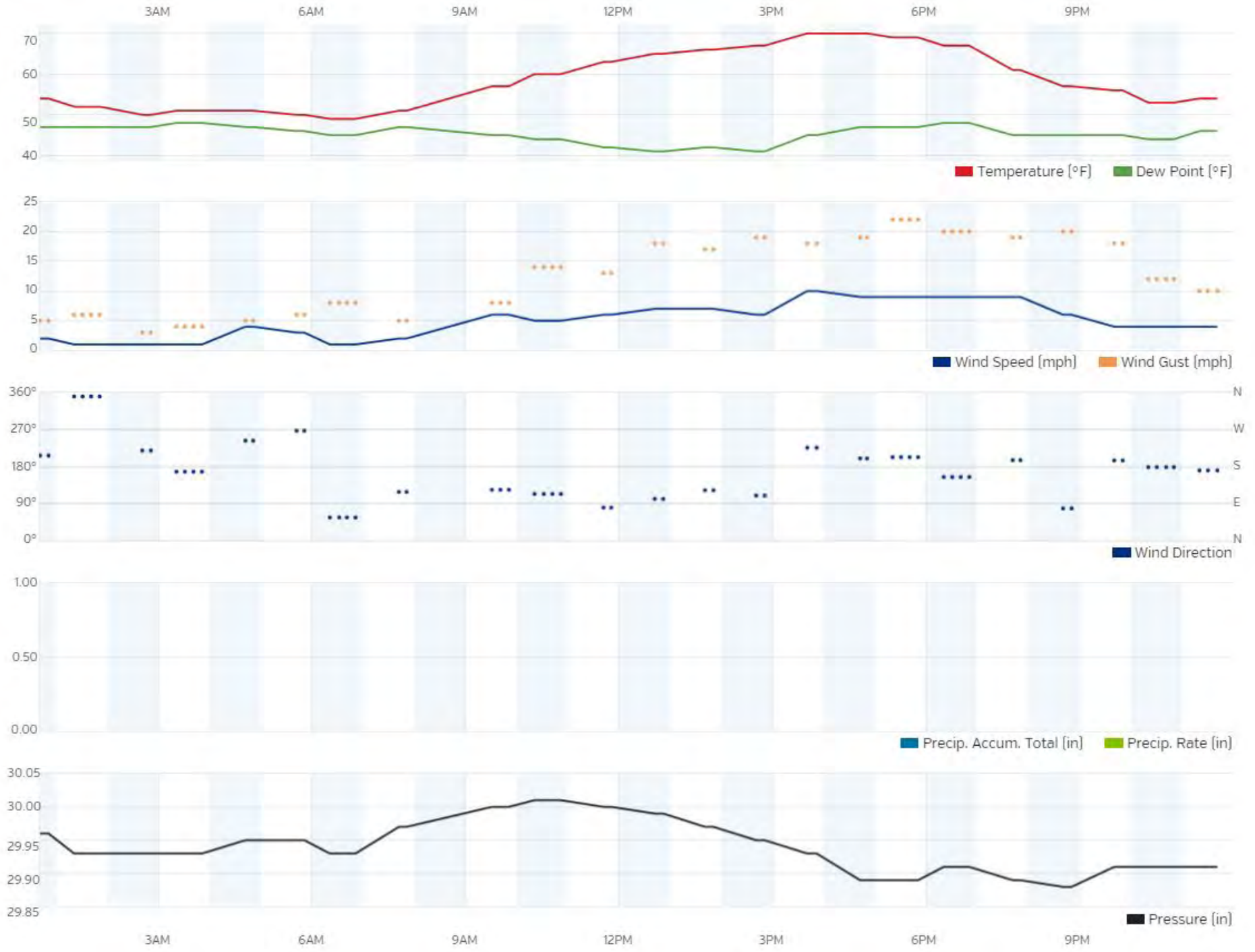
The eleventh sampling event on Wednesday May 13, 2015 took place between approximately 6:18 and 9:52 AM. Skies were mostly clear to overcast, and temperatures ranged between 49 and 57 degrees Fahrenheit. Humidity ranged from 86% at the start of sampling, to 65% when the last observation was taken. Barometric air pressures ranged between 29.93 and 30 inches. Winds were light to moderate and originated from the east-northeast, east-southeast, and southeast directions.

Throughout all Locations, NDs were most common, followed by Parks and Fields/Nature and Dusty/Earthy. Over half of NDs were recorded on the Landfill Property. Of the offsite NDs, almost one-half were recorded in the Val Verde Community. Parks and Fields/Nature descriptors mostly included ‘hay’, ‘grass’, ‘sage’, and ‘wet grass’. Over half of all Parks and Fields/Nature descriptors were detected offsite. Of the Spoiled Food/Decomposition-related observations, over one-half were recorded on the landfill. None of the offsite Spoiled Food/Decomposition observations were detected in the Val Verde Community. Spoiled Food/Decomposition descriptors mostly included ‘trash’ and ‘sour’, and were observed at no higher than a D/T of 4 offsite.

Offsite, D/T ranged from ND up to 4. Hedonic tones noted at offsite locations ranged from -3 at Pickford Place and Livingston/Watertank, up to 3 at Hunstock/Lincoln. Pickford Place was noted to have descriptors of ‘trash’ and ‘wet grass’, with D/Ts of 2 . Livingston/Watertank was noted to have descriptors of ‘trash’ and ‘sour trash’, with D/Ts of 2 and 4. Odor at Hunstock/Lincoln was described as ‘floral’ and ‘honeysuckle’, and had D/Ts of 2. Overall, the highest noted odor offsite was equal to 4 D/T at Livingston/Watertank. The Average D/T and hedonic tone throughout the offsite Locations was 0.7 and 0.1, respectively.

Onsite, D/Ts ranged from ND to 60. Over three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from -8 to 3, with the most negative (-4 to -8) being only observed around the Working Face Locations. D/Ts at or near the Working Face ranged between <2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Musty/Moldy Compost, Cleaning Solvents, Sulfur/Cabbage/Garlic/ and Fishy/Ammonia, with descriptors such as ‘trash’, ‘mulch’, ‘rotten’, ‘seafood’, ‘sweet’, ‘air freshener’, and more. Hedonic tones at the Working Face ranged between -1 and -8. No Green Waste was apparent at this day. Other locations onsite and not immediately near the Working Face were described within the ND, Parks and Fields/Nature, Spoiled Food/Decomposition, Fecal, Dusty/Earthy, Auto Exhaust, and Cleaning Solvents Categories. The highest D/T recorded other than locations at or near the Working Face was equal to 2 at various locations. The Average D/T and hedonic tone throughout the Landfill was 8.2 and -0.8, respectively.

Weather History Graph
May 13, 2015



## Sampling Event 12 – May 14, 2015

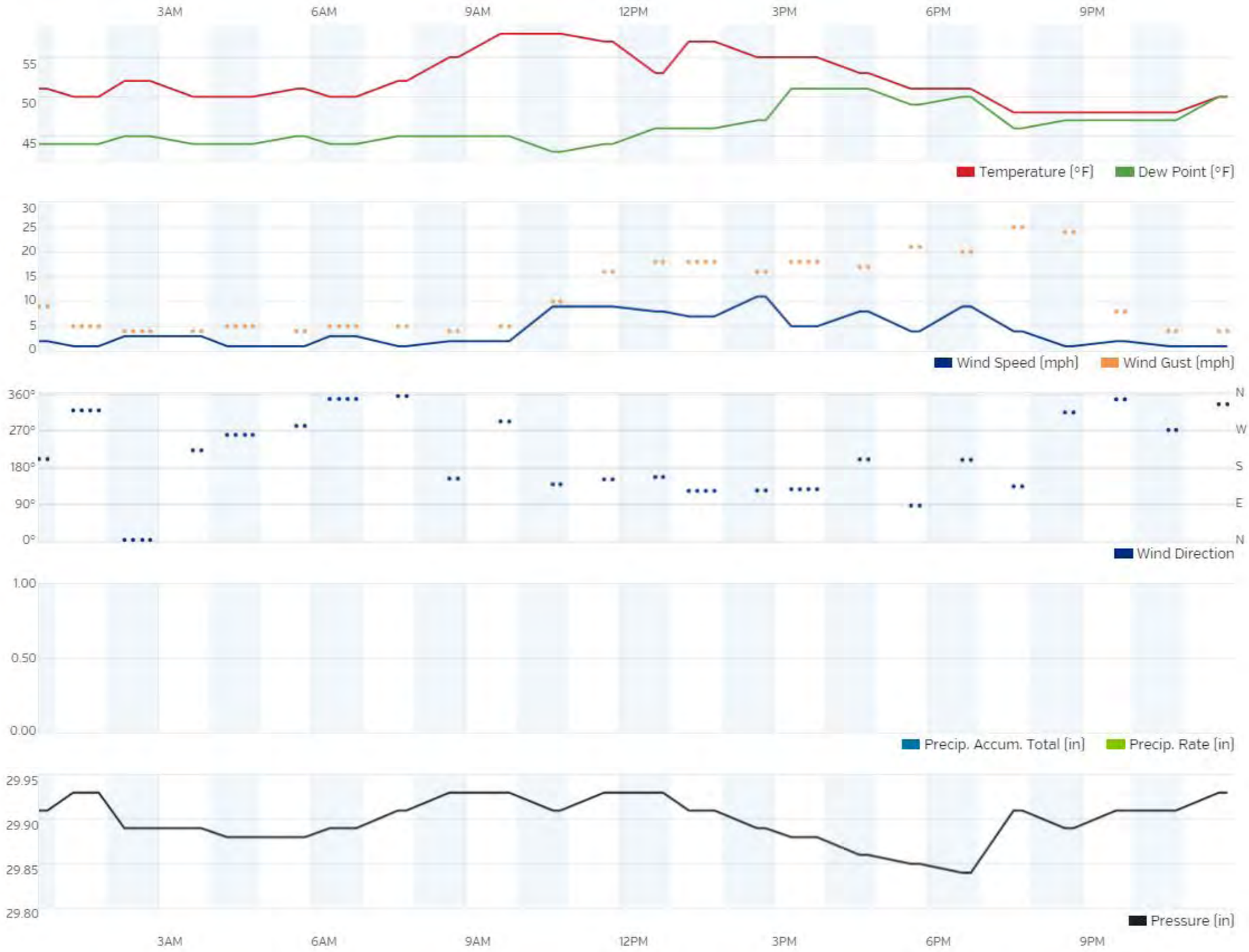
The twelfth sampling event on Thursday May 14, 2015 took place between approximately 6:17 and 9:54 AM. Skies were partly cloudy with some showers, and temperatures ranged between 50 and 58 degrees Fahrenheit. Humidity ranged from 79% at the start of sampling, to 62% when the last observation was taken. Barometric air pressures ranged between 29.89 and 29.93 inches. Winds were light and originated from the north, south-southeast, and west-northwest directions.

Throughout all locations, NDs were most common, followed by Parks and Fields/Nature and Spoiled Food/Decomposition. Over one-half of NDs were recorded offsite. Of those, almost one-third were recorded in the Val Verde Community. Parks and Fields/Nature descriptors mostly included ‘hay’, ‘sage’, and ‘grass’. Approximately one-half of all Parks and Fields/Nature descriptors were detected offsite, and one-half on the Landfill. Of the Spoiled Food/Decomposition-related observations, most were recorded on the landfill. Two observations were detected in the Val Verde Community at Harding South Turn, but the suspected source is something other than the landfill. Spoiled Food/Decomposition descriptors mostly included ‘trash’, ‘leachate’, ‘sour’, and more, and were observed at no higher than a D/T of 2 offsite.

Offsite, D/Ts ranged from ND up to 2. Hedonic tones noted at offsite locations ranged from -3 at Lincoln Avenue South Turn, Jackson Gate, and Livingston/Watertank, up to 2 at Monroe/Lincoln and Taylor/Lincoln. Locations with a hedonic tone of -3 had D/Ts of <2 and 2. Locations with a hedonic tone of 2 had D/Ts of <2 and 2. Overall, the highest noted odor offsite was equal to 2 D/T at various locations. The Average D/T and hedonic tone throughout the offsite Locations was 0.6 and -0.1, respectively.

Onsite, D/Ts ranged from ND to 60. Over three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from -6 to 2, with the most negative (-4 to -6) being only observed around the Working Face Locations. D/Ts at and near the Working Face ranged between <2 and 60. Odors at the Working Face were recorded as Spoiled Food Decomposition, Sulfur/Cabbage/Garlic, Musty/Moldy Compost, and Dusty/Earthy. These descriptors included terms such as ‘trash’, ‘mulch’, ‘rotten egg’, ‘sour’ and more. Hedonic tones at the Working Face ranged between -1 and -6. No Green Waste was apparent at this day. Other locations onsite and not immediately near the Working Face were described within the ND, Spoiled Food/Decomposition, Parks and Fields/Nature, Dusty Earth, and Cleaning Solvents Categories. The highest D/T recorded at locations other than the at or near the Working Face was equal to 7 at Perimeter NNE with a descriptor of ‘air freshener’. The Average D/T and hedonic tone throughout the Landfill was 4.9 and -1, respectively.

Weather History Graph
May 14, 2015



## Sampling Event 13 – May 20, 2015

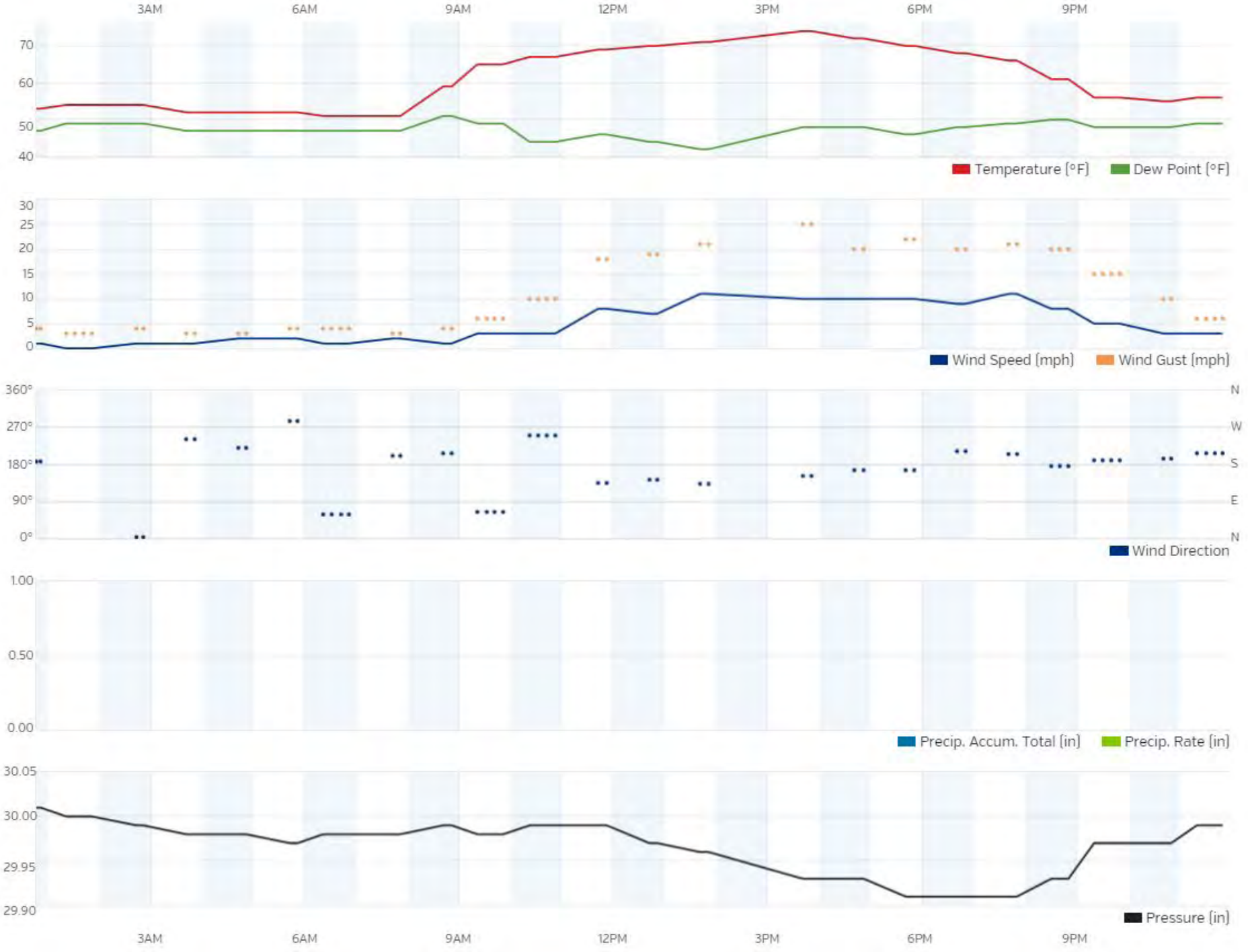
The thirteenth sampling event on Wednesday May 20th, 2015 took place between approximately 6:10 and 9:25 AM. Skies were partly cloudy and temperatures ranged between 51 and 65 degrees Fahrenheit. Humidity ranged from 85% at the start of sampling, to 56% when the last observation was taken. Barometric air pressures were maintained at 29.98 inches. Winds were light and originated from the east-northeast and the south-southwest directions.

Throughout all locations, NDs were most common, followed by Parks and Fields/Nature and Spoiled Food/Decomposition. Approximately one-half of the NDs were recorded offsite, and one-half onsite. Of those NDs recorded offsite, over one-half were recorded in the Val Verde Community. Parks and Fields/Nature descriptors mostly included ‘grass’, ‘hay’, ‘sweet’, ‘sour’, and ‘wet grass’. Over three-quarters of all Parks and Fields/Nature descriptors were detected offsite, and of those, over half were recorded in the Val Verde Community. Of the Spoiled Food/Decomposition-related observations, almost all were recorded on the landfill. None were recorded in the Val Verde Community. Spoiled Food/Decomposition descriptors mostly included ‘trash’, ‘sweet’, ‘sharp’, and more.

Offsite, D/Ts ranged from ND up to 2. Hedonic tones noted at offsite locations ranged from -4 at Jackson Gate, up to 4 at Cromwell/Hunstock. Jackson Gate had D/Ts of 2 with descriptors of ‘manure’, ‘trash’, and ‘seafood’. Cromwell/Hunstock had D/Ts of <2 and 2 with descriptors of ‘sweet’, ‘maple’, ‘berries’, and ‘hay’. Overall, the highest noted odor offsite was equal to 2 D/T at various locations. The Average D/T and hedonic tone throughout the offsite Locations was 0.6 and 0.08, respectively.

Onsite, D/Ts ranged from ND to 60. About three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from -6 to 2, with the most negative (-4 to -6) being only observed around the Working Face Locations. D/Ts at and near the Working Face ranged between <2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Fishy/Ammonia, Sulfur/Cabbage/Garlic, and Fecal. These descriptors included terms such as ‘trash’, ‘seafood’, ‘rotten egg’, ‘sweet’, ‘manure’, and more. Hedonic tones at the Working Face ranged between -1 and -6. Other locations onsite and not immediately near the Working Face were described within the ND, Spoiled Food/Decomposition, Parks and Fields/Nature, Fishy/Ammonia, Cleaning Solvents, Dusty/Earthy, and Auto Exhaust Categories. The highest D/T recorded at locations other than at or near the Working Face was equal to 15 at the Fire Center Overlook with descriptors of ‘trash’, ‘leachate’, and ‘sweet/rancid’. The Average D/T and hedonic tone throughout the Landfill was 5.4 and -0.7, respectively.

Weather History Graph
May 20, 2015



## Sampling Event 14 – May 21, 2015

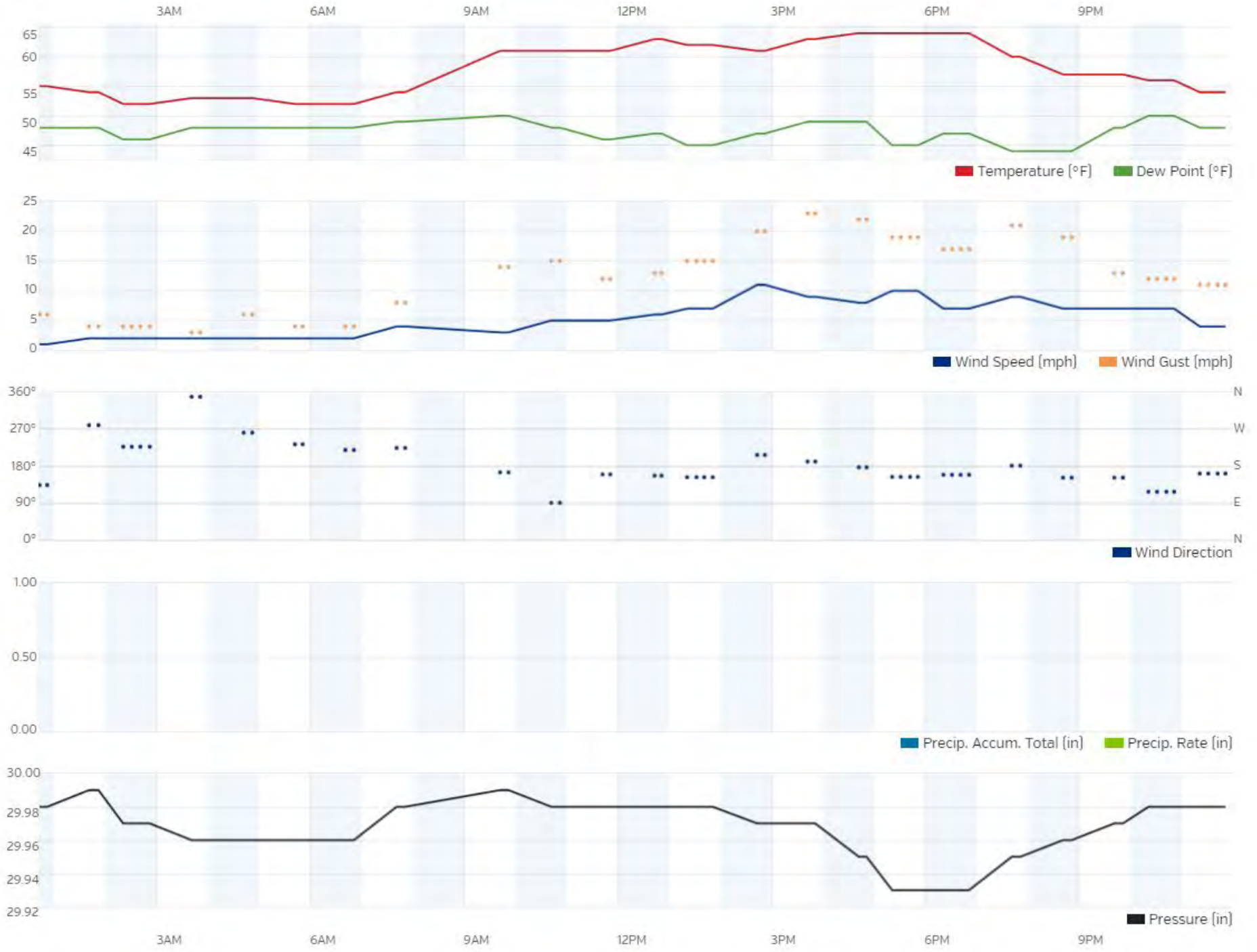
The fourteenth sampling event on Thursday May 21st, 2015 took place between approximately 6:31 and 10:10 AM. Skies were mostly cloudy to overcast, and temperatures ranged between 52 and 61 degrees Fahrenheit. Humidity ranged from 86% at the start of sampling, to 62% when the last observation was taken. Barometric air pressures ranged between 29.96 and 29.98 inches. Winds were light and originated from the southwest, south-southeast, and east directions.

Throughout all locations, NDs were most common, followed by Parks and Fields/Nature and Spoiled Food/Decomposition. Over one-half of the NDs were recorded offsite. Parks and Fields/Nature descriptors mostly included ‘wet hay’, ‘wet grass’, and ‘sage’. Over half of all Parks and Fields/Nature descriptors were detected offsite, and about half were recorded in the Val Verde Community. Of the Spoiled Food/Decomposition-related observations, all were recorded on the landfill. Spoiled Food/Decomposition descriptors mostly included ‘trash’, ‘rancid’, ‘rotten egg’, ‘mulch’, and more.

Offsite, D/Ts ranged from ND up to 2. Hedonic tones noted at offsite locations ranged from -3 at Jackson Gate, up to 2 at Industry Drive and Lincoln Avenue South Turn. Jackson Gate had D/Ts of <2 and 2 with descriptors of ‘manure’, ‘farm’, and ‘wet hay’. Industry Drive had D/Ts of <2 and 2 with descriptors of ‘fresh cut grass’ and ‘sweet grass’. Lincoln Avenue South Turn had D/Ts of ND, <2, and 2 with descriptors of ‘wet grass’ and ‘hay’. Overall, the highest noted odor offsite was equal to 2 D/T at various locations. The Average D/T and hedonic tone throughout the offsite Locations was 0.54 and 0.03, respectively.

Onsite, D/Ts ranged from ND to 60. Over three-quarter of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged -8 to 2, with the most negative (-5 to -8) being only observed around the Working Face Locations. D/Ts at and near the Working Face ranged between <2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Musty/Moldy Compost, Sulfur/Cabbage/Garlic, and Cleaning Solvents. These descriptors included terms such as ‘trash’, ‘rotten egg’, ‘mulch’, ‘air freshener’ and more. Hedonic tones at the Working Face ranged between -1 and -8. Other locations onsite and not immediately near the Working Face were described within the ND, Spoiled Food/Decomposition, Parks and Fields/Nature, Musty/Moldy, Dusty/Earthy, Cleaning Solvents, and Auto Exhaust Categories. The highest D/T recorded at locations other than at or near the Working Face was equal to 7 at the Turnout Tank with descriptors of ‘trash’ and ‘sesame’. The Average D/T and hedonic tone throughout the Landfill was 6.11 and -1.2, respectively.

Weather History Graph
May 21, 2015



## Sampling Event 15 – May 28, 2015

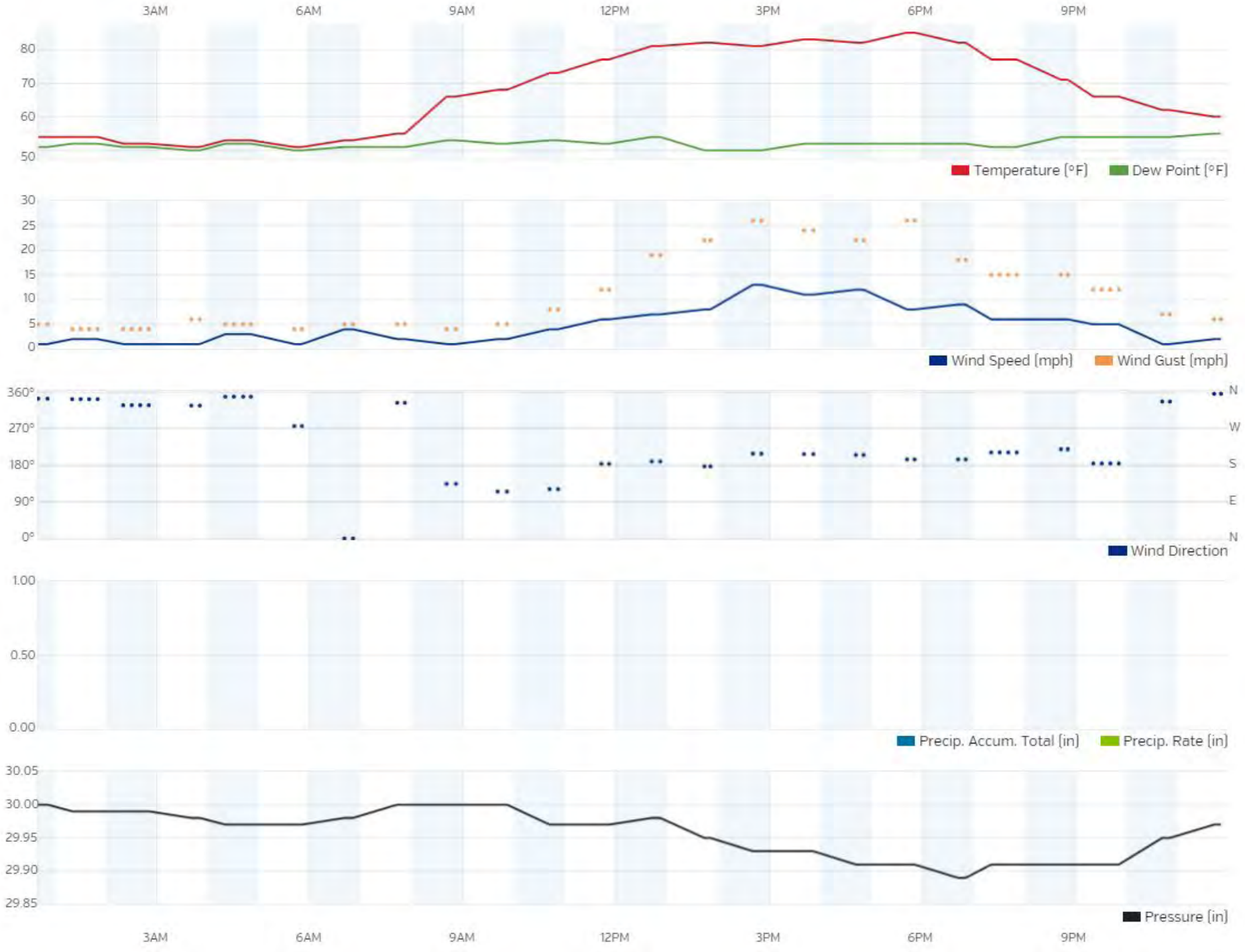
Sampling on Thursday, May 28th, 2015, took place between approximately 6:17 and 9:28 AM. Skies mostly clear and temperatures ranged between about 53 to 68 degrees Fahrenheit. Humidity ranged from 93% at the start of sampling, to 57% when the last observation was taken. Barometric air pressure rose from 29.98 to 30 inches. Winds were light, and originated from the north-northwest, north, southeast and east-southeast.

Throughout the Landfill and offsite sampling locations, NDs were most common, followed by descriptors relating to Parks and Fields/Nature and Spoiled Food/Decomposition. Parks and Fields/Nature descriptors recorded offsite included ‘hay’, ‘grass’, and ‘sweet’. Approximately two-thirds of all NDs were recorded offsite. Roughly one-half of offsite NDs were recorded in the Val Verde Community.

Offsite, D/T ranged from non-detect (ND) up to 2. Hedonic tones noted at offsite locations ranged from negative one at the Wolcott Light, Monroe/Lincoln, Central East, Hunstock/Lincoln, and Del Valle 1 Locations, up to positive six at Livingston/Watertank. Locations with hedonic tones of -1 had recorded descriptors of ‘dust’, ‘fruity’, and ‘exhaust’. Odor at Livingston/Watertank was described as ‘sweet, sugary, bakery’, ‘marshmallow’, and ‘berries, sweet creme’. Locations with unpleasant odors with -1 hedonic tones were noted to have D/Ts of <2. Overall, the highest noted odor was equal to 2 D/T at Livingston/Watertank. This Location was the only Location to have a recorded D/T of 2, whereas all other offsite observations were either <2 or ND. The Average D/T and hedonic tone throughout the offsite Locations was 0.44 and 0.34, respectively.

Onsite, D/Ts ranged from ND to 60. Over three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from positive two to negative seven, with the most negative hedonic tones (-6 and -7) being noted at the Working Face and Green Waste. D/T at and near the Working Face ranged between <2 through 60. Odors at the Working Face were recorded as Must/Moldy Compost, Fishy/Ammonia, and Spoiled Food/Decomposition with descriptors such as ‘very sweet, mulch’, ‘rotten trash, seafood, landfill’, and ‘trash, mulch, sour’. Other locations onsite and not immediately near the Working Face were described within the ND, Auto Exhaust, Spoiled Food/Decomposition, Parks and Fields/Nature, Cleaning Solvents, Dusty/Earthy, Sulfur/Cabbage/Garlic Categories. Over one-third of observations made in the other locations throughout the Landfill were identified to be ND. Approximately two thirds of detected odors onsite were attributed to Landfill waste. The highest D/T recorded other than locations at or near the Working Face was equal to 7 at the Energy Plant and Turnout Tank Locations (hedonic tones of -5 and -4, respectively). The Average D/T and hedonic tone throughout the Landfill was 5.43 and -1.0, respectively.

Weather History Graph
May 28, 2015



## Sampling Event 16 – June 3, 2015

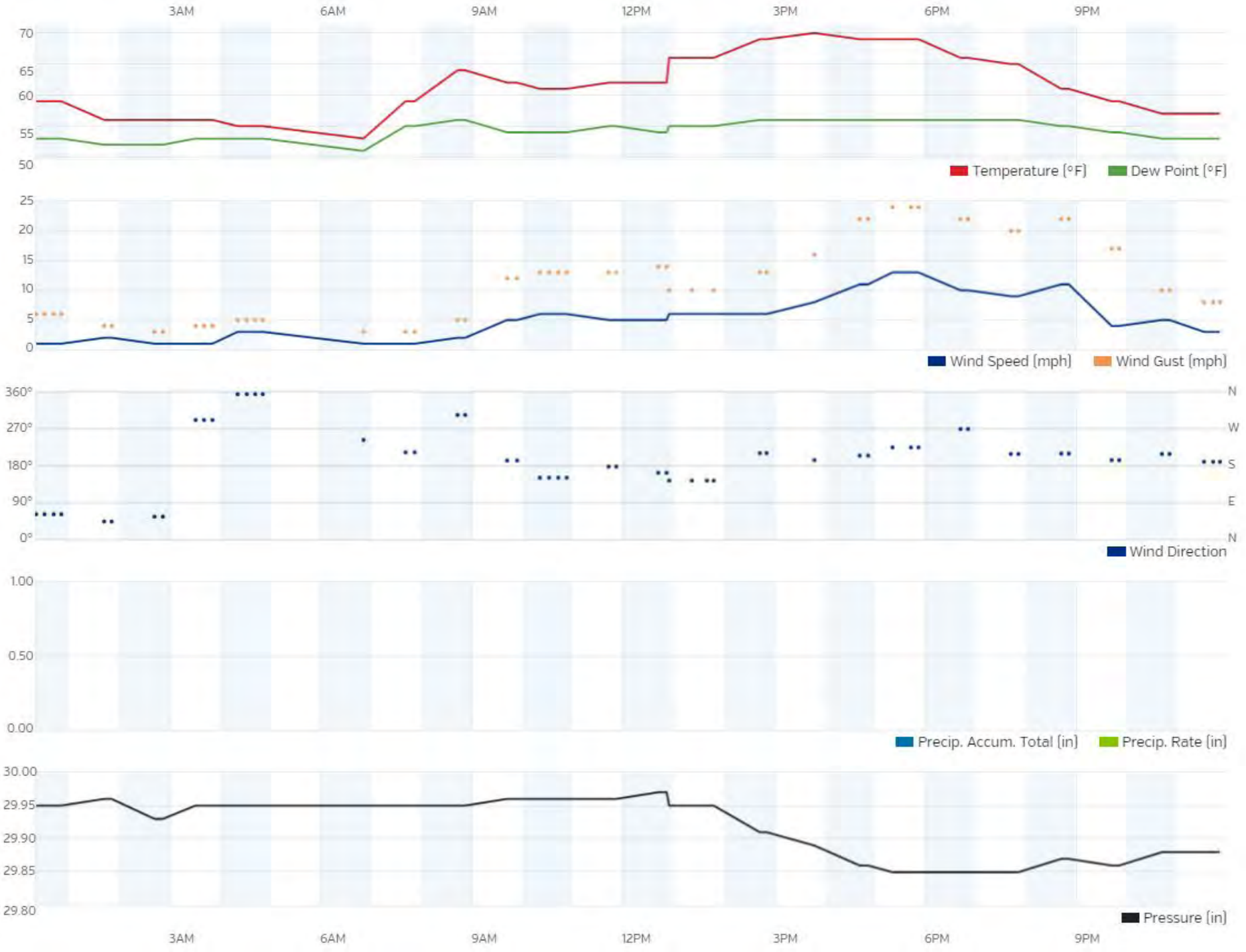
Sampling on Wednesday, June 3rd, 2015, took place between approximately 6:10 and 9:37 AM. Skies were mostly cloudy and temperatures ranged between about 53 to 62 degrees Fahrenheit. Humidity ranged from 94% at the start of sampling, to 75% when the last observation was taken. Barometric air pressure rose from 29.95 to 29.96 inches. Winds were light, and originated from the south-southwest, west-southwest, southwest, and northwest.

Throughout all Locations, NDs were most common, followed by descriptors relating to Spoiled Food/Decomposition and Parks and Fields/Nature. One-third of NDs were recorded on the Landfill Property and two-thirds of all recorded NDs were located offsite. Of the offsite NDs, more than one-half were recorded in the Val Verde Community. Less than one-fourth of Spoiled Food/Decomposition-related observations were recorded offsite. These odors were detected at Pickford Place and Post Office, with D/Ts of <2 or 2. Parks and Fields/Nature descriptors recorded offsite included 'hay', 'grass', and 'wet hay'. More than one-half of all Parks and Fields/Nature descriptors were recorded on the Landfill Property.

Offsite, D/T ranged from non-detect (ND) up to 2. Hedonic tones noted at offsite locations ranged from negative four at Pickford Place, up to positive three at Cromwell/Hunstock. A single descriptor of 'trash' was recorded at Pickford Place with D/Ts of <2 and 2. Odor at Cromwell/Hunstock was described as 'sweet', 'candy, sweet', and 'grass, sweet fruity'. Overall, the highest noted odor offsite was equal to 2 D/T at Pickford Place and the Post Office. These Locations had descriptors of 'trash', however, the source of the trash odor could not be attributed to the Landfill. The Average D/T and hedonic tone throughout the offsite Locations was 0.43 and -0.06, respectively.

Onsite, D/Ts ranged from ND to 60. Over three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from positive one to negative eight, with the most negative hedonic tones (-4 through -8) being noted at the Working Face Locations. D/T at and near the Working Face ranged between 2 and 60. Odors at the Working Face were recorded as Fishy/Ammonia, Spoiled Food/Decomposition, Sulfur/Cabbage/Garlic, and Cleaning Solvents with descriptors such as 'trash', 'trash, sour, rotten egg', 'rotten egg'. 'trash, mulch', 'air freshener, trash' and more. Hedonic tones at the Working Face ranged between -2 and -8. No Green Waste was apparent on this day. Other locations onsite and not immediately near the Working Face were described within the ND, Spoiled Food/Decomposition, Parks and Fields/Nature, Fishy/Ammonia, Cleaning Solvents, and Dusty/Earthy Categories. Over one-third of observations made in the other locations throughout the Landfill were recorded as ND. Approximately one-fourth of detected odors onsite were attributed to Landfill waste. The highest D/T recorded other than locations at or near the Working Face was equal to 4 at the Condensate Location (hedonic tone of -3). The Average D/T and hedonic tone throughout the Landfill was 8.01 and -1.4, respectively.

Weather History Graph
June 3, 2015



## Sampling Event 17 – June 4, 2015

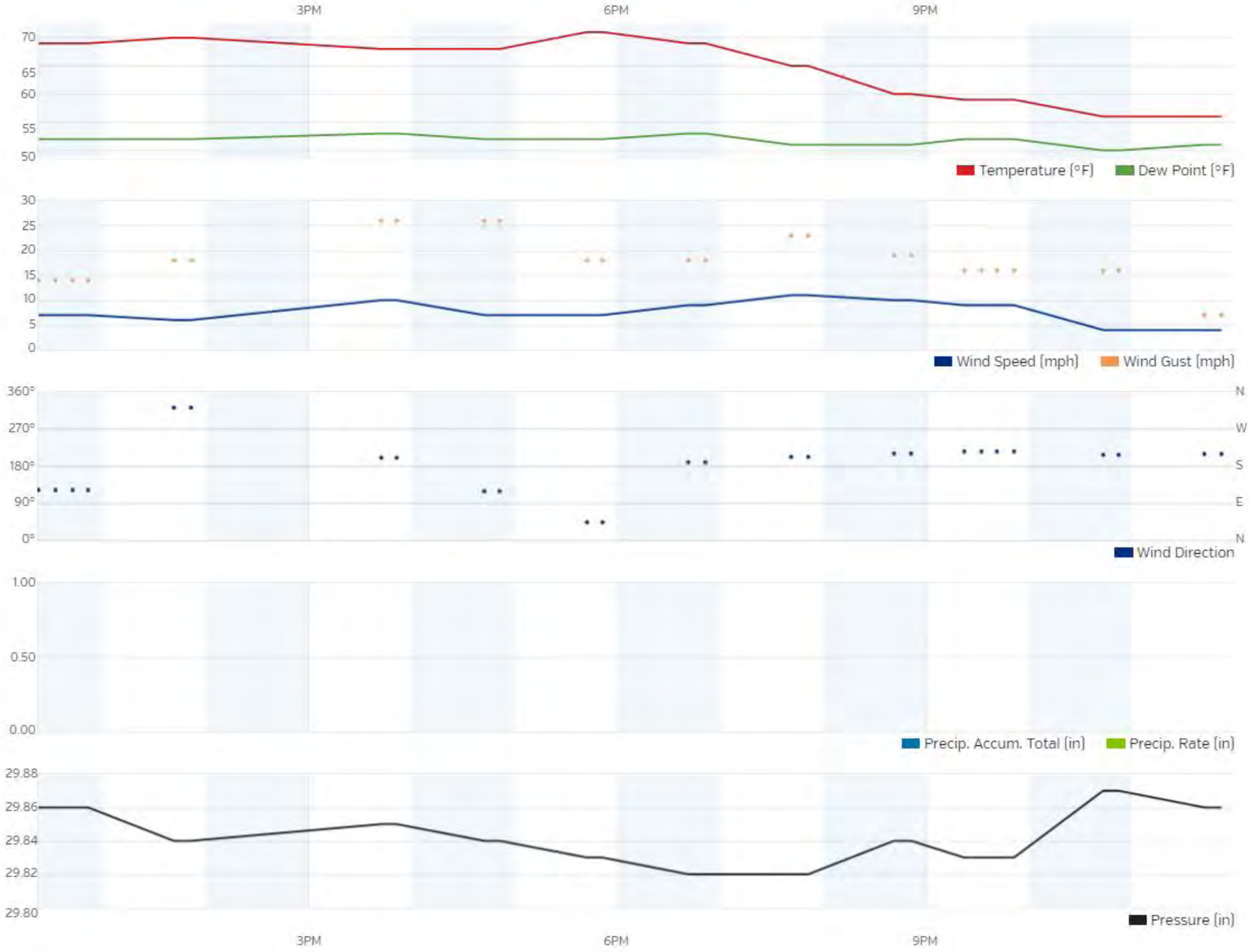
Sampling on Thursday, June 4th, 2015, took place between approximately 6:19 and 9:51 AM. Skies were overcast and temperatures decreased from 69 to 59 degrees Fahrenheit. Humidity ranged from 56% at the start of sampling, to 77% when the last observation was taken. Barometric air pressure rose from 29.82 to 29.83 inches. Winds were moderate, and originated from the south-southwest, southwest, and south.

Throughout all Locations, NDs were most common, followed by descriptors relating to Parks and Fields/Nature and Spoiled Food/Decomposition. Over one-third of NDs were recorded on the Landfill Property. Of the offsite NDs, more than one-half were recorded in the Val Verde Community. Parks and Fields/Nature descriptors recorded offsite mostly included 'hay', 'grass', and 'wet grass'. Over one-third of all Parks and Fields/Nature descriptors were recorded at the Landfill. No offsite locations had Spoiled Food/Decomposition-related observations. These odors were detected at the Landfill, with D/Ts of <2 up to 60.

Offsite, D/T ranged from non-detect (ND) up to 2. Hedonic tones noted at offsite locations ranged from negative three at Hunstock/Lincoln, up to positive two at Chiquito Cyn/Central. Hunstock/Lincoln was noted to have odor descriptors of 'rotten earth', 'grass', and ND, with D/Ts of <2 and 2. Odor at Chiquito Cyn/Central was described as grassy and floral. Overall, the highest noted odor offsite was equal to 2 D/T at Hunstock/Lincoln. This Location had descriptors of 'grass', 'rotten earth', and ND. The Average D/T and hedonic tone throughout the offsite Locations was 0.33 and 0.04, respectively.

Onsite, D/Ts ranged from ND to 60. Over three-quarters of observations on the Landfill noted odors lesser than or equal to 4 D/T. Observations of hedonic tone ranged from positive two to negative seven, with the most negative hedonic tones (-4 through -7) being noted at Working Face Locations. D/T at and near the Working Face ranged between 2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Musty/Moldy, and Cleaning Solvents with descriptors such as 'trash', 'sour trash', 'trash, mulch', 'air freshener' and more. Hedonic tones at the Working Face ranged between -1 and -7. No Green Waste was apparent on this day. Other locations onsite and not immediately near the Working Face were described within the ND, Spoiled Food/Decomposition, Parks and Fields/Nature, Cleaning Solvents, and Auto Exhaust Categories. Over one-half of observations made in the other locations throughout the Landfill were recorded as ND. Less than one-fourth of detected odors onsite were attributed to Landfill waste. The highest D/T recorded other than locations at or near the Working Face was equal to 4 at the Turnout Tank Location (hedonic tone of -3). The Average D/T and hedonic tone throughout the Landfill was 8.53 and -1.1, respectively.

Weather History Graph
June 4, 2015



## Sampling Event 18 – June 11, 2015

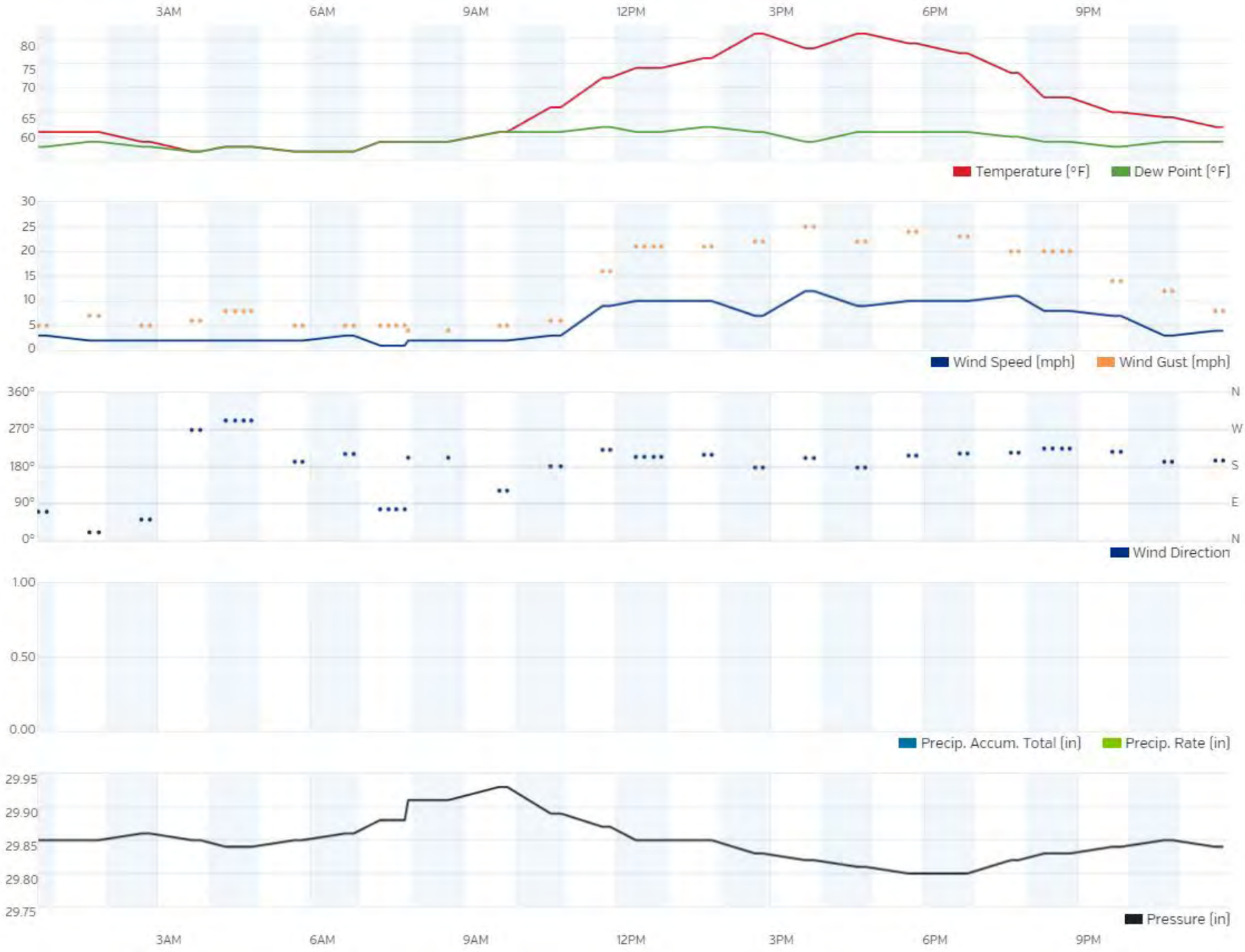
Sampling on Thursday, June 11th, 2015, took place between approximately 6:16 and 9:32 AM. Skies were overcast and foggy, and temperatures ranged from 57 to 61 degrees Fahrenheit. Humidity remained constant at 100% throughout the sampling duration. Barometric air pressure rose from 29.86 to 29.93 inches. Winds were light from the south-southwest, east-northeast, and east-southeast.

Throughout all Locations, NDs were most common, followed by descriptors relating to Parks and Fields/Nature and Spoiled Food/Decomposition. Over one-third of NDs were recorded on the Landfill Property. Of the offsite NDs, approximately two-thirds were recorded in the Val Verde Community. Parks and Fields/Nature descriptors recorded offsite mostly included 'hay', 'grass', and variations of sweet descriptors. One-third of all Parks and Fields/Nature descriptors were recorded at the Landfill. Two offsite Locations had Spoiled Food/Decomposition-related observations, however these descriptors were not attributed to the Landfill. Spoiled Food/Decomposition descriptors were detected at the Landfill with D/Ts of <2 up to 60.

Offsite, D/T ranged from non-detect (ND) up to 2. Hedonic tones noted at offsite locations ranged from negative three at Del Valle 1, up to positive four at Del Valle/Halsey Cyn. Del Valle 1 was noted to have odor descriptors of 'rotten, grass, rain', 'sweet rotten earth', and 'sweet rotten', with D/Ts of <2 and 2 and hedonic tones of -2 and -3. Odor at Chiquito Cyn/Central was described as 'maple syrup, sweet', 'maple syrup', and 'syrup, cocoa'. Overall, the highest noted odors offsite were equal to 2 D/T at the Central East, Hunstock/Lincoln, and Del Valle 1 Locations. These three Locations had descriptors within the Coffee Shop/Pleasant Flavors, Parks and Fields/Nature, Dusty/Earthy, Musty/Moldy Compost, Fecal, and Spoiled Food/Decomposition Categories. No descriptors recorded offsite were attributed to the Landfill. The Average D/T and hedonic tone throughout the offsite Locations was 0.69 and 0.18, respectively.

Onsite, D/Ts ranged from ND to 60. Three-quarters of observations on the Landfill noted odors lesser than or equal to 2 D/T. Observations of hedonic tone ranged from positive two to negative eight, with the most negative hedonic tones (-4 through -8) being noted at Working Face Locations. D/T at and near the Working Face ranged between 4 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition and Cleaning Solvents with descriptors such as 'trash', 'sour trash', 'trash, mulch', 'sweet sour trash, putrid' and others. Hedonic tones at the Working Face ranged between -2 and -8. No Green Waste was apparent on this day. Other locations onsite and not immediately near the Working Face were described within the ND, Spoiled Food/Decomposition, Cleaning Solvents, Parks and Fields/Nature, Coffee Shop/Pleasant Flavors, and Dusty/Earthy Categories. Over one-third of observations made in the other locations throughout the Landfill were recorded as ND. About one-half of detected odors onsite were attributed to Landfill waste. The highest D/T recorded other than locations at or near the Working Face was equal to 2 at the Perimeter North and Condensate Locations, with descriptors of 'trash', 'sour trash', 'faint leachate', and 'trash, hay'. The Average D/T and hedonic tone throughout the Landfill was 7.71 and -1.2, respectively.

Weather History Graph
June 11, 2015



## Sampling Event 19 – June 25, 2015

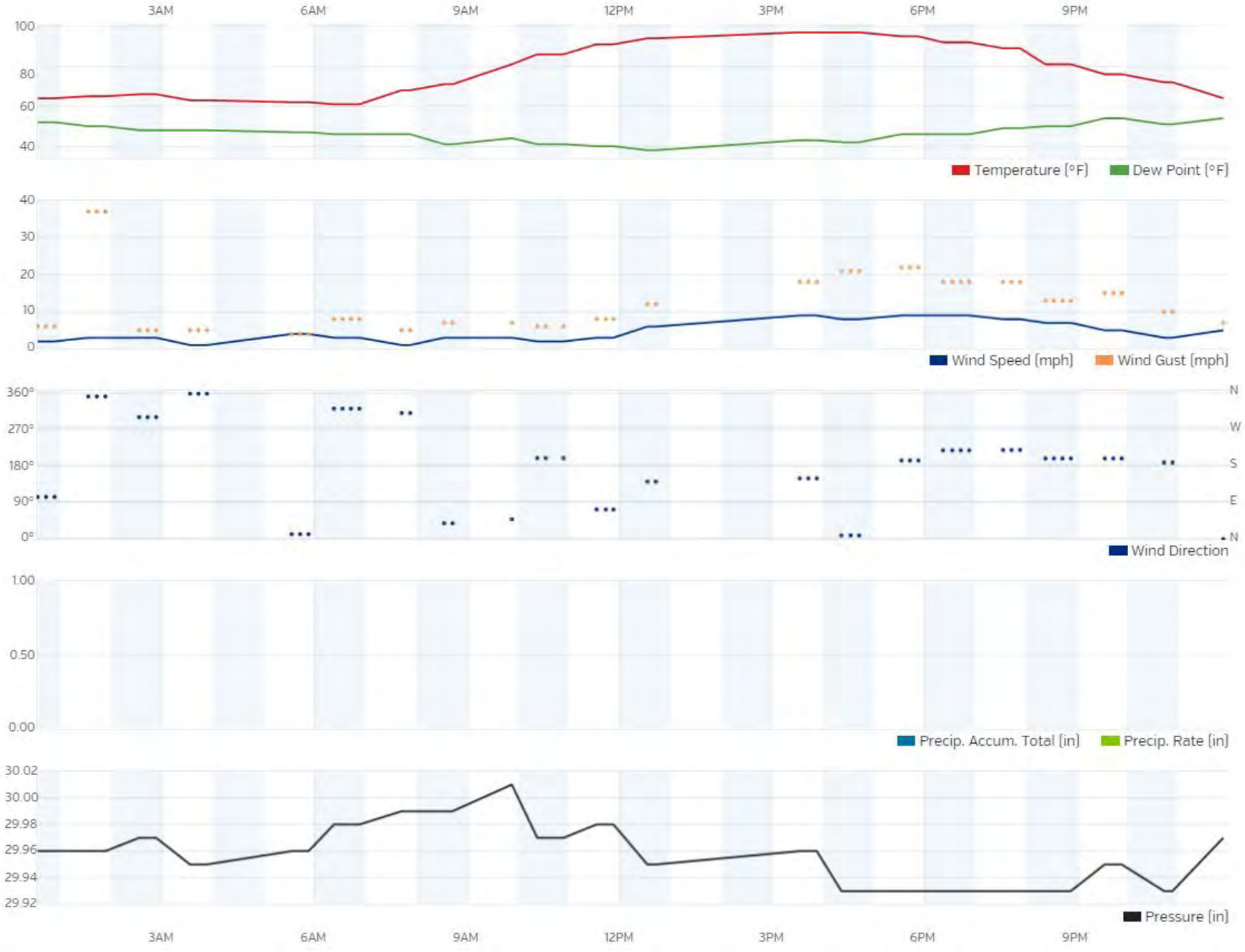
Sampling on Thursday, June 25th, 2015, took place between approximately 6:11 and 9:57 AM. Skies were mostly clear and temperatures ranged from 61 to 81 degrees Fahrenheit. Humidity decreased from 57% to 27% during the sampling duration. Barometric air pressure rose from 29.98 to 30.01 inches. Winds were calm to light from the northwest and northeast.

Throughout all Locations, NDs were most common, followed by descriptors relating to Spoiled Food/Decomposition and Parks and Fields/Nature. Over one-third of NDs were recorded on the Landfill Property. Of the offsite NDs, over one-third were recorded in the Val Verde Community. Parks and Fields/Nature descriptors recorded offsite mostly included 'hay', 'grass', and a couple 'faint sour' descriptors. Approximately one-third of all Parks and Fields/Nature descriptors were recorded at the Landfill. No offsite Locations had observations of odors which could be attributed to the Landfill. Spoiled Food/Decomposition descriptors were detected at the Landfill with D/Ts of <2 up to 60.

Offsite, D/T ranged from non-detect (ND) up to 4. Hedonic tones noted at offsite locations ranged from negative three at Jackson Gate and Monroe/Lincoln, up to positive four at Chiquito Cyn/Central. Jackson Gate and Monroe/Lincoln were noted to have manure odors with D/Ts of <2, 2 and 4. Odor at Chiquito Cyn/Central was described as 'floral' with a D/T of 4. Overall, the highest noted odors offsite were equal to 4 D/T at the Chiquito Cyn/Central and Jackson Gate Locations. These two Locations had descriptors within the Fragrant/Fruity and Fecal Categories, respectively. No descriptors recorded offsite were attributed to the Landfill. The Average D/T and hedonic tone throughout the offsite Locations was 0.55 and -0.18, respectively.

Onsite, D/Ts ranged from ND to 60. More than two-thirds of observations on the Landfill noted odors lesser than or equal to 2 D/T. Observations of hedonic tone ranged from positive one to negative eight, with the most negative hedonic tones (-4 through -8) being noted at Working Face Locations. D/T at and near the Working Face ranged between 2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Fishy/Ammonia, and Cleaning Solvents with descriptors such as 'trash', 'sweet, sour trash', 'trash, leachate', 'mulch, trash, fishy', and others. Hedonic tones at the Working Face ranged between -2 and -8. No Green Waste was apparent on this day. Other locations onsite and not immediately near the Working Face were described within the ND, Spoiled Food/Decomposition, Parks and Fields/Nature, and Dusty/Earthy Categories. Over one-half of observations made in the other locations throughout the Landfill were recorded as ND. Less than one-fourth of detected odors onsite were attributed to Landfill waste. The highest D/T recorded other than locations at or near the Working Face was equal to 15 at the Odor System Location, described as 'wet dirt'. The Average D/T and hedonic tone throughout the Landfill was 7.98 and -1.4, respectively.

Weather History Graph
June 25, 2015



## Sampling Event 20 – June 30, 2015

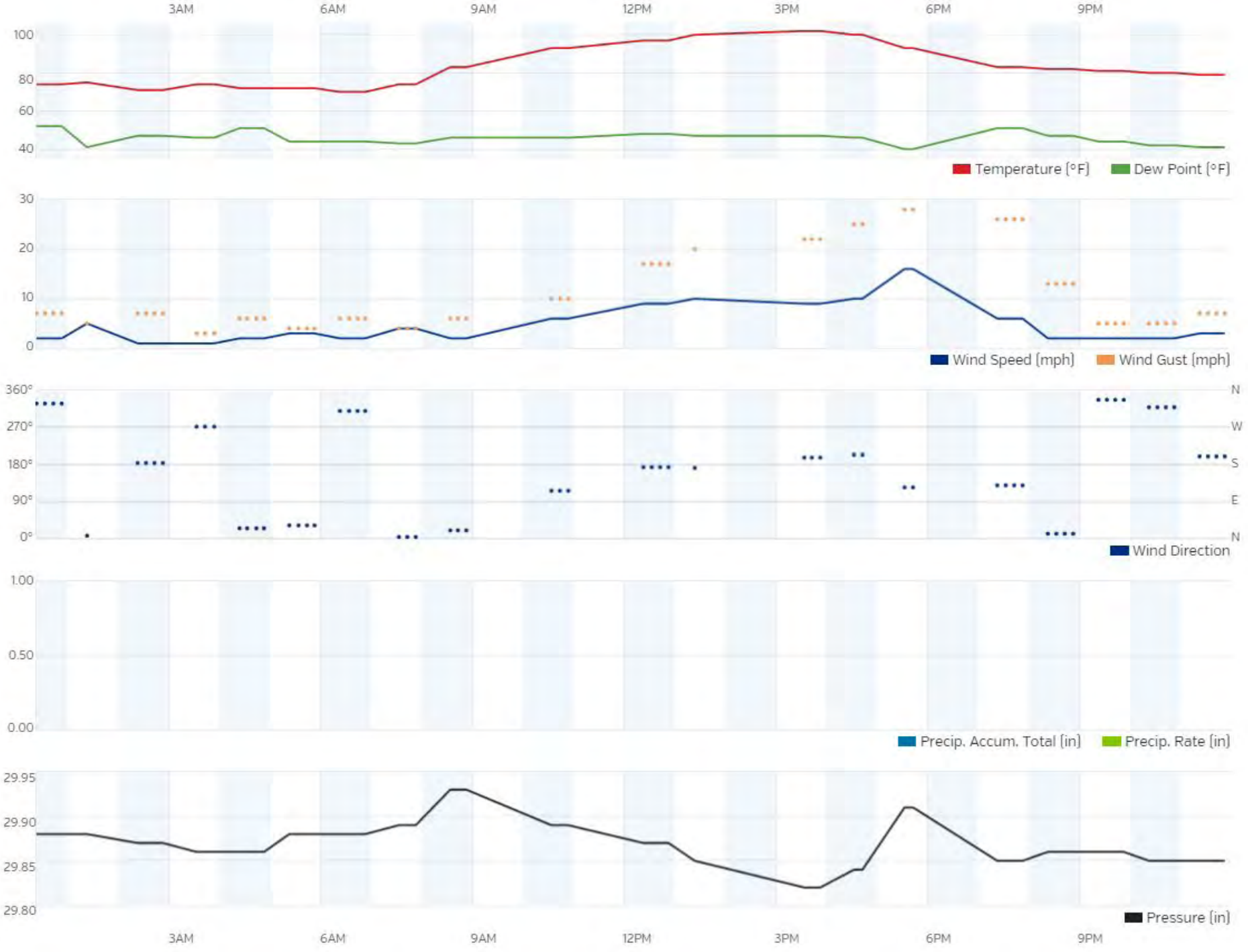
Sampling on Tuesday, June 30th, 2015, took place between approximately 6:14 and 9:32 AM. Skies were mostly clear, and temperatures ranged from 70 to 83 degrees Fahrenheit. Humidity decreased from 39% to 27% during the sampling duration. Barometric air pressure rose from 29.88 to 29.93 inches. Winds were calm and light from the northwest, north, and north-northeast.

Throughout all Locations, NDs were most common, followed by descriptors relating to Parks and Fields/Nature and Spoiled Food/Decomposition. About one-half of NDs were recorded on the Landfill Property. Of the offsite NDs, about two-thirds were recorded in the Val Verde Community. Parks and Fields/Nature descriptors recorded offsite included 'hay', 'grass', and 'eucalyptus, herby' descriptors. Over one-half of all Parks and Fields/Nature descriptors were recorded at the Landfill. Spoiled Food/Decomposition descriptors were detected at the Landfill with D/Ts of <2 up to 60.

Offsite, D/T ranged from ND up to 7. Hedonic tones noted at offsite locations ranged from negative four at Jackson Gate, up to positive eight at Liverpool Court. Jackson Gate was noted to have horse manure odors with D/Ts of 2 and 7. Odor at Liverpool Court was described as 'floral' and 'honeysuckle' with a D/T of 7. Overall, the highest noted odors offsite were equal to 7 D/T at the Liverpool Court and Jackson Gate Locations. One offsite Location, Chiquito Canyon South, was noted to have stale trash-like odor at D/Ts of 2 and 4. The Average D/T and hedonic tone throughout the offsite Locations was 1.23 and 0.72, respectively.

Onsite, D/Ts ranged from ND to 60. Three-quarters of observations on the Landfill noted odors lesser than or equal to 2 D/T. Observations of hedonic tone ranged from positive two to negative six, with the most negative hedonic tones (-5 and -6) being noted at Working Face Locations. D/T at and near the Working Face ranged between <2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Dusty/Earthy, and Musty/Moldy Compost with descriptors such as 'trash', 'sour trash', 'moldy, mulchy, stale trash', 'trash, wet dirt', and others. Hedonic tones at the Working Face ranged between -1 and -6. No Green Waste was apparent on this day. Other locations onsite and not immediately near the Working Face were described within the ND, Parks and Fields/Nature, Spoiled Food/Decomposition, Fragrant/Fruity, Sulfur/Cabbage/Garlic, Dusty/Earthy, and Fecal Categories. Over one-half of observations made in the other locations throughout the Landfill were recorded as ND. Less than one-fourth of detected odors at other onsite Locations were attributed to Landfill waste. The highest D/T recorded other than locations at or near the Working Face was equal to 4 at the White Tanks Location, described as 'stale trash'. The Average D/T and hedonic tone throughout the Landfill was 7.91 and -0.9, respectively.

Weather History Graph
June 30, 2015



## Sampling Event 21 – July 1, 2015

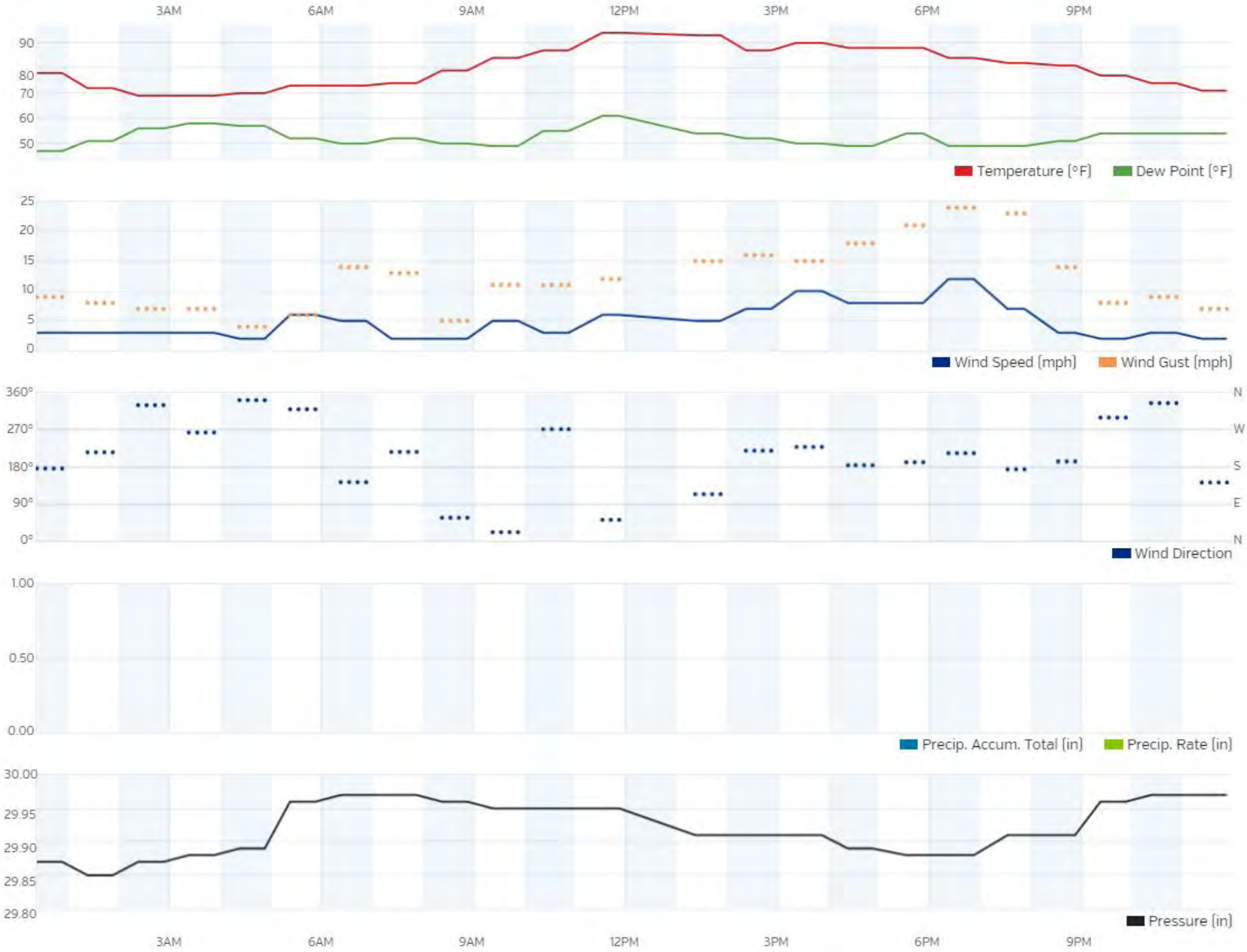
Sampling on Wednesday, July 1st, 2015, took place between approximately 6:13 and 9:30 AM. Skies were partly to mostly cloudy, and temperatures ranged from 73 to 84 degrees Fahrenheit. Humidity decreased from 39% to 27% during the sampling duration. Barometric air pressure rose from 29.88 to 29.93 inches. Winds were light from the northwest, north, and north-northeast.

Throughout all Locations, NDs were most common, followed by descriptors relating to Parks and Fields/Nature and Spoiled Food/Decomposition. More than one-third of NDs were recorded on the Landfill Property. Of the offsite NDs, about two-thirds were recorded in the Val Verde Community. Parks and Fields/Nature descriptors recorded offsite included 'hay', 'grass', and 'sage' as well as spicy and peppery descriptors. About one-third of all Parks and Fields/Nature descriptors were recorded at the Landfill. Spoiled Food/Decomposition descriptors were detected at the Landfill with D/Ts of <2 up to 60.

Offsite, D/T ranged from ND to 4. Hedonic tones noted at offsite locations were lowest at values of negative one at Wolcott Turn, Livingston/Watertank, Fire Center Road, Del Valle/Halsey Cyn, Del Valle 2, Post Office, Madison/Lincoln, and Chiquito Cyn/Madison. The most pleasant hedonic tone was recorded at positive five at Liverpool Court. Records of Locations with hedonic tones of -1 were described within the Parks and Fields/Nature, Dusty/Earthy, and Spoiled Food/Decomposition Categories. Odor at Liverpool Court was described as 'honeysuckle' and 'floral' with D/Ts of 2 and 4. Overall, the highest noted odor offsite was equal to 4 D/T at Liverpool Court. No offsite Locations had odors which were attributed to the Landfill. The Average D/T and hedonic tone throughout the offsite Locations was 0.43 and 0.20, respectively.

Onsite, D/Ts ranged from ND to 60. Over three-quarters of observations on the Landfill noted odors lesser than or equal to 2 D/T. Observations of hedonic tone ranged from positive three to negative six. D/T at and near the Working Face ranged between ND and 60. Odors at the Working Face were recorded as ND, Spoiled Food/Decomposition, Cleaning Solvents, Sulfur/Cabbage/Garlic, and Musty/Moldy Compost with descriptors such as 'trash', 'rotten egg', 'disinfectant', 'air freshener', 'trash, sharp, mulch', 'trash, leachate', and others. Hedonic tones at the Working Face ranged between -6 and 2. The positive hedonic tone was likely due to the operating odor system located nearby. No Green Waste was apparent on this day. Other locations onsite and not immediately near the Working Face were described within the ND, Parks and Fields/Nature, Spoiled Food/Decomposition, Dusty/Earthy, Bakery, and Fishy/Ammonia Categories. Over one-half of observations made in the other locations throughout the Landfill were recorded as ND. Less than one-fourth of detected odors at other onsite Locations were attributed to Landfill waste. The highest D/T recorded other than locations at or near the Working Face was equal to 7 at the White Tanks Location, described as 'trash, rotten'. The Average D/T and hedonic tone throughout the Landfill was 3.57 and -0.9, respectively.

Weather History Graph
July 1, 2015



## Sampling Event 22 – July 2, 2015

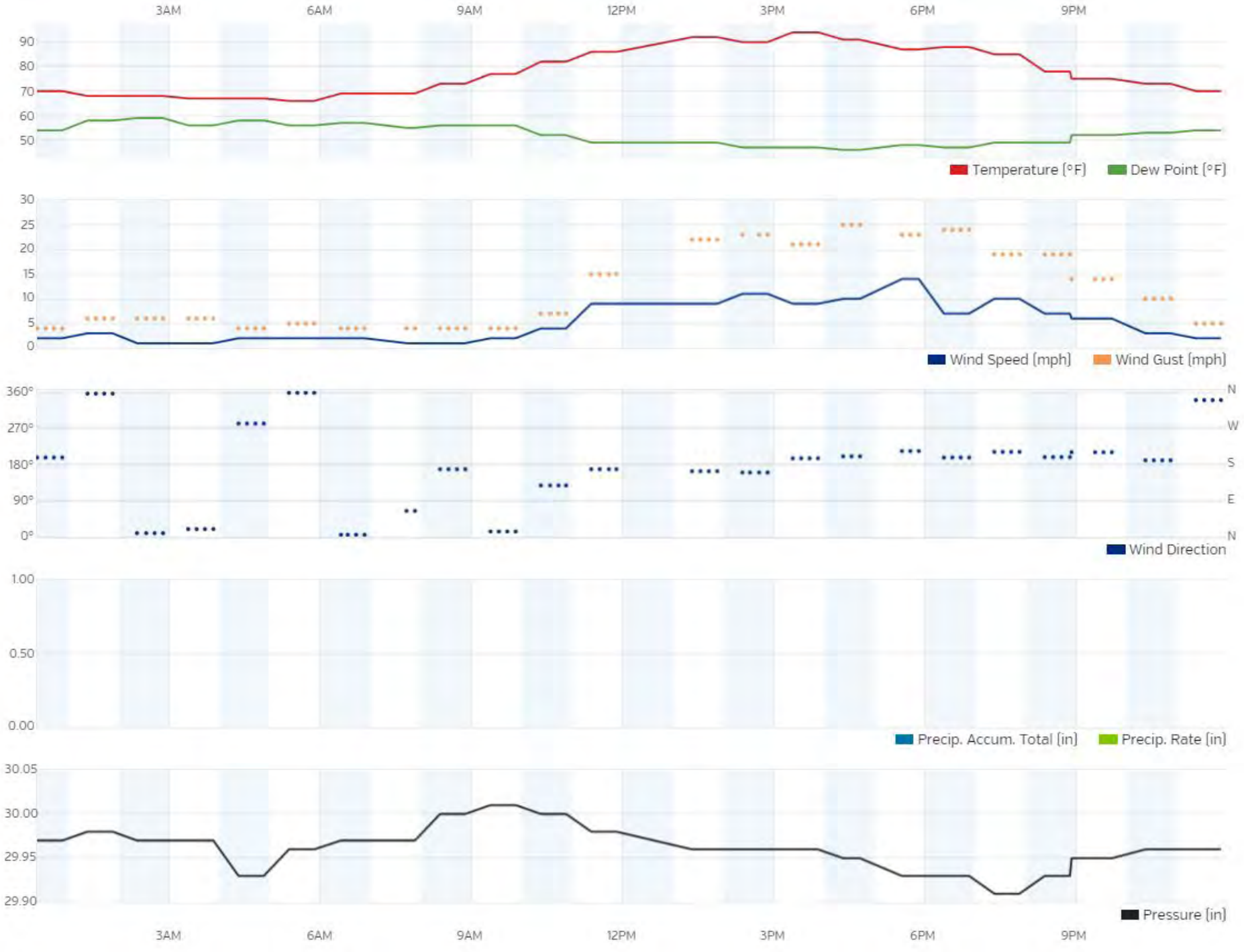
Sampling on Thursday, July 2nd, 2015, took place between approximately 6:20 and 9:42 AM. Skies were partly cloudy and temperatures ranged from 69 to 77 degrees Fahrenheit. Humidity decreased from 65% to 48% during the sampling duration. Barometric air pressure rose from 29.97 to 30.01 inches. Winds were calm to light from the north, north-northeast, east-northeast, and south.

Throughout all Locations, NDs were most common, followed by descriptors relating to Spoiled Food/Decomposition and Parks and Fields/Nature. About one-third of NDs were recorded on the Landfill Property. Of the offsite NDs, two-thirds were recorded in the Val Verde Community. Parks and Fields/Nature descriptors recorded offsite included 'hay', 'grass', and 'rotten sage' as well as spicy and herbal descriptors. More than one-third of all Parks and Fields/Nature descriptors were recorded at the Landfill. Spoiled Food/Decomposition-related odors were detected at the Landfill with D/Ts of <2 up to 60. No offsite Locations were described within the Spoiled Food/Decomposition Category.

Offsite, D/T ranged from ND to 7. Hedonic tones noted at offsite locations were lowest at values of negative four at Jackson Gate, to positive seven at Liverpool Court. Jackson Gate odors were described as 'manure' and 'horse manure' at D/Ts of 2 and 4. Odor at Liverpool Court was described as 'honeysuckle, sweet', 'honeysuckle', and 'floral' with D/Ts of 4 and 7. Overall, the highest noted odors offsite were equal to 7 D/T at Liverpool Court and Livingston/Watertank. No offsite Locations had odors which were attributed to the Landfill. The Average D/T and hedonic tone throughout the offsite Locations was 0.95 and 0.24, respectively.

Onsite, D/Ts ranged from ND to 60. Over three-quarters of observations on the Landfill noted odors lesser than or equal to 2 D/T. Observations of hedonic tone ranged from positive one to negative seven. D/T at and near the Working Face ranged between ND and 60. Odors at the Working Face were recorded as ND, Spoiled Food/Decomposition, Cleaning Solvents, and Dusty/Earthy, with descriptors such as 'trash, mulch', 'trash, vinegar, sharp, leachate', 'air freshener', 'sweet trash, mulch', and others. Hedonic tones at the Working Face ranged between -7 and -1. No Green Waste was apparent on this day. Other locations onsite and not immediately near the Working Face were described within the ND, Parks and Fields/Nature, Spoiled Food/Decomposition, Dusty/Earthy, and Fishy/Ammonia Categories. Over one-third of observations made in the other locations throughout the Landfill were recorded as ND. About one-half of detected odors at other onsite Locations were attributed to Landfill waste. The highest D/T recorded other than locations at or near the Working Face was equal to 7 at Perimeter North, and was described as 'trash', 'sweet trash, run off'. The Average D/T and hedonic tone throughout the Landfill was 3.98 and -1.2, respectively.

Weather History Graph
July 2, 2015



## Sampling Event 23 – July 14, 2015

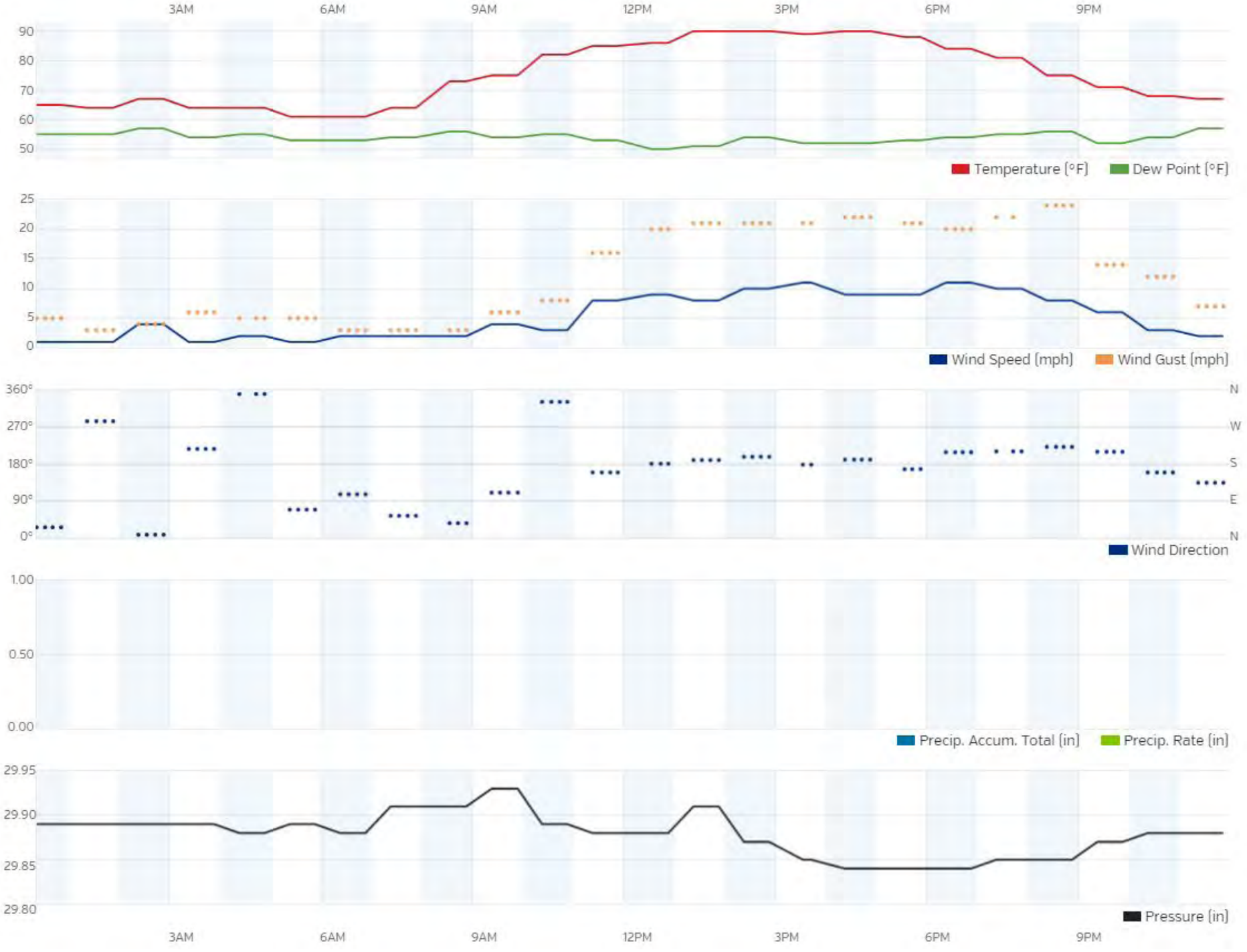
Sampling on Tuesday, July 14th, 2015, took place between approximately 6:38 and 9:39 AM. Skies were mostly clear and temperatures ranged from 61 to 75 degrees Fahrenheit. Humidity decreased from 76% to 48% during the sampling duration. Barometric air pressure rose from 29.88 to 29.93 inches. Winds were light from the northeast and east-southeast.

Throughout all Locations, NDs were most common, followed by descriptors relating to Parks and Fields/Nature and Spoiled Food/Decomposition. More than one-third of NDs were recorded on the Landfill Property. Of the offsite NDs, about one-half were recorded in the Val Verde Community. Parks and Fields/Nature descriptors recorded offsite included 'wet hay, musty', 'grass', and 'wet grass'. About one-third of all Parks and Fields/Nature descriptors were recorded at the Landfill. Spoiled Food/Decomposition-related odors were detected at the Landfill with D/Ts of <2 up to 60. Three offsite Locations were described within the Spoiled Food/Decomposition Category. These odors were suspected to be related to the Landfill at two of these Locations.

Offsite, D/T ranged from ND to 4. Hedonic tones noted at offsite locations were lowest at values of negative four at Jackson Gate, and highest (positive three) at the Chiquito Cyn/Central, Del Valle/Halsey Cyn, and Livingston/Watertank Locations. Chiquito Cyn/Central, Del Valle/Halsey Cyn, and Livingston/Watertank had recorded D/Ts between ND and <2, and were described with Fragrant/Fruity, Musty/Moldy Compost, Parks and Fields/Nature, and Soapy descriptors. Jackson Gate odors were described as Fecal, at D/Ts of 2 and 4, with hedonic tones of -2 and -4. Overall, the odors noted to have the highest D/Ts offsite were recorded at 4 D/T at the Cromwell/Hunstock, Fire Center Road, and Jackson Gate Locations. All three of these Locations had unpleasant hedonic tones. A 'trash, rotten' odor was noted at Fire Center Road, and was suspected to be attributed to the Landfill. Chiquito Cyn South was also suspected to have odors associated with the Landfill ('trash', 'faint sour trash', and descriptors with D/Ts equal to <2). No other offsite Locations had odors which were attributed to the Landfill. The Average D/T and hedonic tone throughout the offsite Locations was 0.80 and -0.14, respectively.

Onsite, D/Ts ranged from ND to 60. About three-quarters of observations on the Landfill noted odors lesser than or equal to 2 D/T. Observations of hedonic tone ranged from positive one to negative five. D/T at and near the Working Face ranged between 2 and 60. Odors at the Working Face were recorded as Spoiled Food/Decomposition, Musty/Moldy Compost, and Dusty/Earthy, with descriptors such as 'mulch, faint sharp trash', 'pungent, trash', 'musty, mulch', 'wet dirt', 'strong mulch', and others. Hedonic tones at the Working Face ranged between -4 and 1. Other locations onsite and not immediately near the Working Face were described within the ND, Auto Exhaust, Spoiled Food/Decomposition, Parks and Fields/Nature, Fecal, Dusty/Earthy, Bakery, and Sulfur/Cabbage/Garlic Categories. More than one-third of observations made in the other locations throughout the Landfill were recorded as ND. About one-fourth of detected odors at other onsite Locations were attributed to Landfill waste. The Odor System Location had a D/T equal to 60 and was described as 'rotten, trash', and 'strong, sweet rancid trash'. The Average D/T and hedonic tone throughout the Landfill was 8.25 and -0.9, respectively.

Weather History Graph
July 14, 2015



## Sampling Event 24 – July 15, 2015

Sampling on Wednesday, July 15th, 2015, took place between approximately 6:40 and 11:55 AM. Skies were mostly clear and temperatures ranged from 59 to 80 degrees Fahrenheit. Humidity decreased from 92% to 46% during the sampling duration. Barometric air pressure rose from 29.93 to 29.95 inches. Winds were light and moderate from the north, east-northeast, east, east-southeast, and west-southwest.

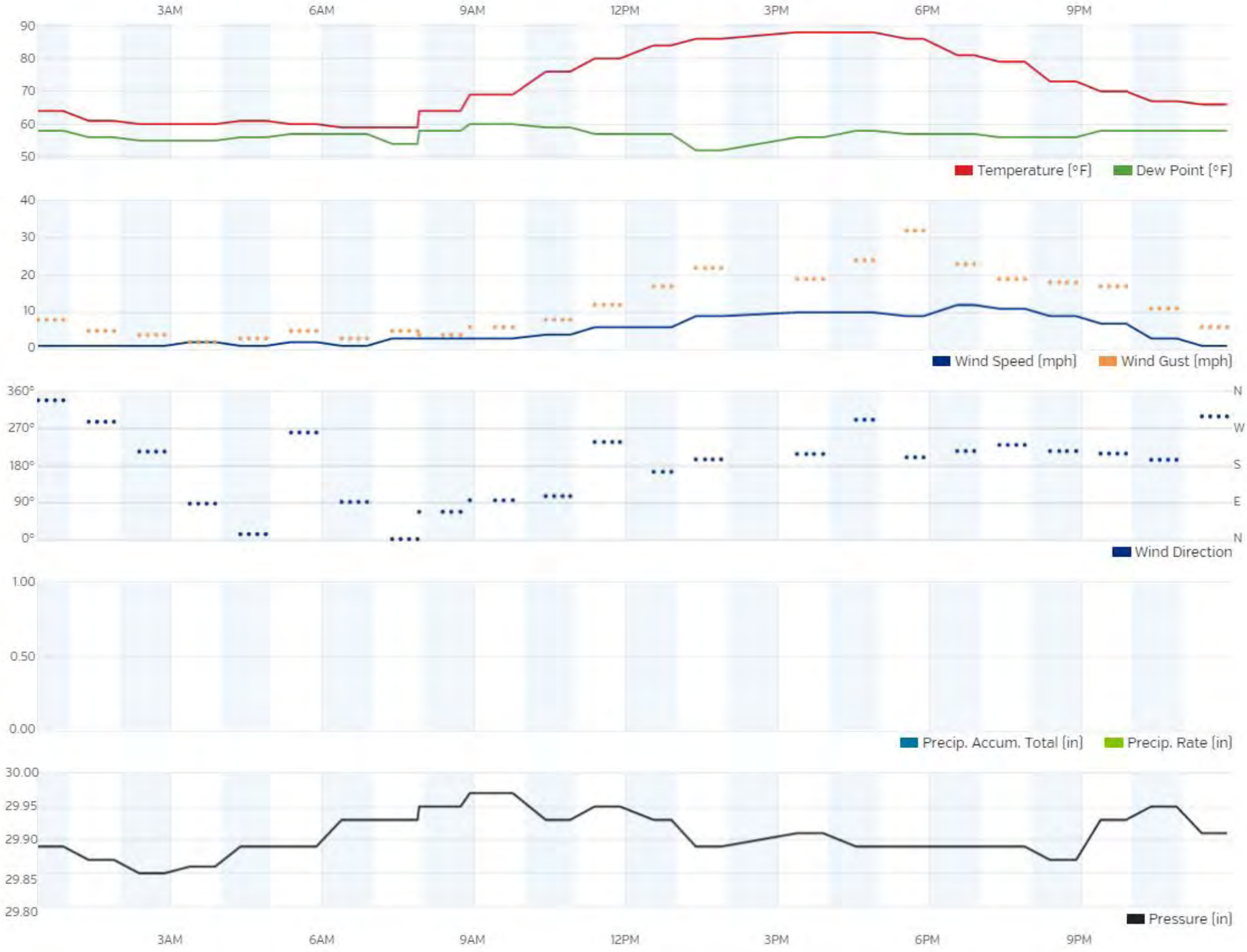
This sampling event was notable because it was the first occasion in which landfill odors were clearly detected in the Val Verde community.

Throughout all Locations, NDs were most common, followed by descriptors relating to Parks and Fields/Nature then Spoiled Food/Decomposition. About half of NDs were recorded on the Landfill Property. Of the offsite NDs, about one-half were recorded in the Val Verde Community. Parks and Fields/Nature descriptors recorded offsite included wet grass, wet hay, and some floral and sweet descriptors. About one-third of all Parks and Fields/Nature descriptors were recorded at the Landfill. Spoiled Food/Decomposition-related odors were detected at the Landfill with D/Ts of <2 up to 60.

Offsite, D/T ranged from ND to 7. Hedonic tones noted at offsite locations were lowest at values of negative three at Jackson Gate and Wolcott Light; to positive three at Liverpool Court, Livingston/Watertank, and Post Office. Jackson Gate was noted to have a Fecal odor. Wolcott Light had detections of ‘trash’ and ‘sour trash’ at <2, believed to be associated with the Landfill. Liverpool Court had a ‘floral, honeysuckle’ odor and the Post Office had Bakery-related odors. At Livingston/Watertank, ND, ‘sour trash’, and ‘shampoo’ were all noted, with hedonic tones ranging between negative two and positive three. The ‘sour trash’ record was suspected to be from the Landfill, however it may have been from a nearby confounding source instead. Six offsite Locations (Taylor/Linclon, Central East, San Martinez/Lincoln, Del Valle 1, Wolcott Light, and Livingston/Watertank) were suspected to have odors related to the Landfill, with D/Ts ranging between <2 and 4. Central East and Taylor/Lincoln had the highest detections. The Average D/T and hedonic tone throughout the offsite Locations was 0.83 and -0.34, respectively.

Onsite, D/Ts ranged from ND to 60. Three-quarters of observations on the Landfill noted odors lesser than or equal to 2 D/T. Observations of hedonic tone ranged from positive two to negative seven. D/T at and near the Working Face ranged between ND and 60. Odors at the Working Face were recorded as ND, Spoiled Food/Decomposition, Fishy/Ammonia, and Musty/Moldy Compost, with descriptors such as ‘mulch’, ‘sweet, leachate’, ‘sharp sweet mulch’, ‘seafood, sharp, trash, sweet’, and others. Hedonic tones at the Working Face ranged between -7 and -1. Other Locations onsite and not immediately near the Working Face were described within the ND, Parks and Fields/Nature, Spoiled Food/Decomposition, and Cleaning Solvents Categories. More than half of the observations made in the other Locations throughout the Landfill were recorded as ND. Less than one-fourth of the detected odors at other onsite Locations were attributed to Landfill waste. The highest D/T recorded other than Locations at or near the Working Face was equal to 15 at Condensate, and was described as ‘condensate’, ‘sour, mulch, leachate’, and ‘condensate, chemical’. The Average D/T and hedonic tone throughout the Landfill was 7.20 and -1.2, respectively.

Weather History Graph
July 15, 2015



## Sampling Event 25 – July 16, 2015

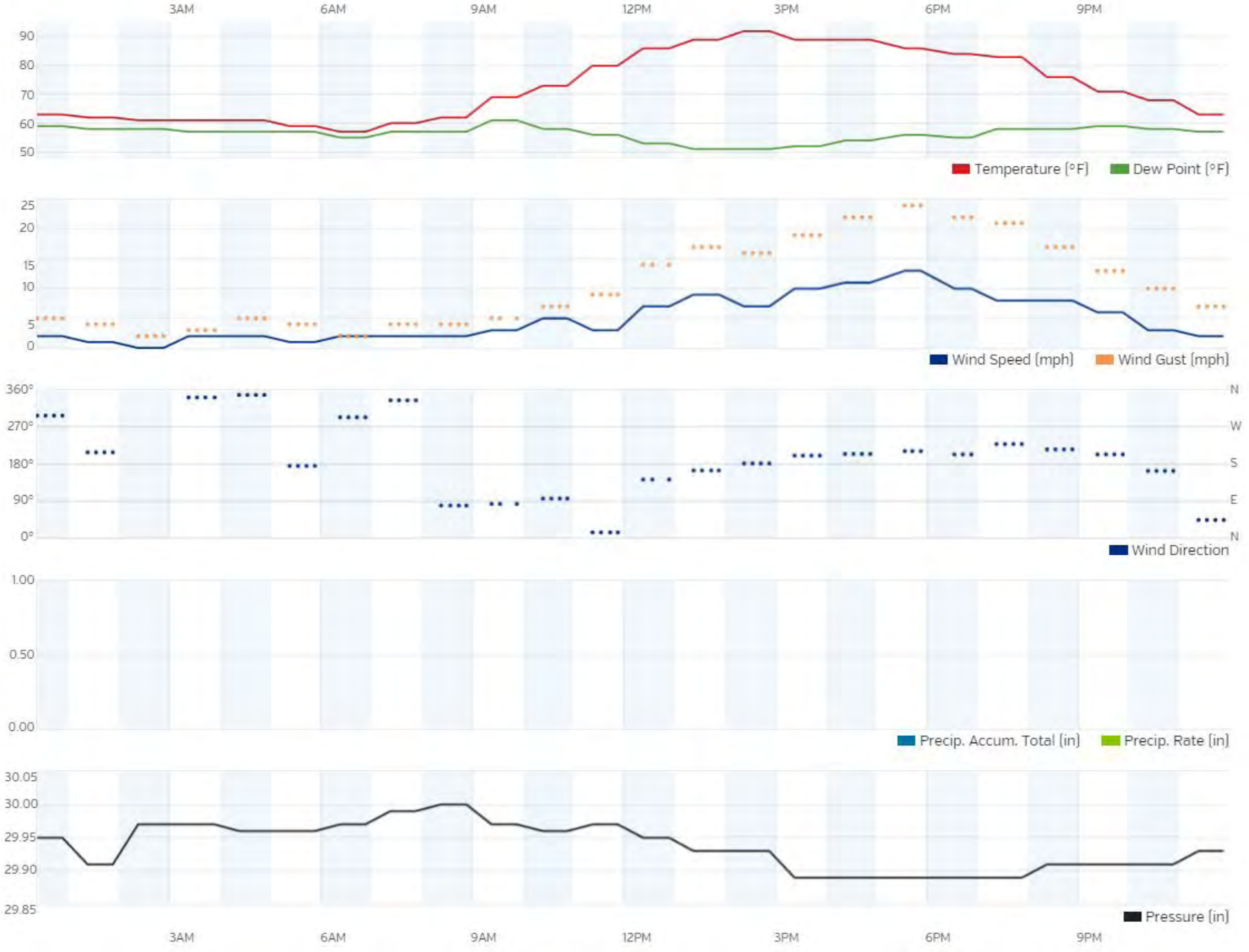
Sampling on Thursday, July 16th, 2015, took place between approximately 6:28 and 9:27 AM. Skies were mostly sunny and partly cloudy, and temperatures ranged from 57 to 69 degrees Fahrenheit. Humidity decreased from 92% to 75% during the sampling duration. Barometric air pressure remained constant at 29.97 inches. Winds were calm to light from the west-northwest, north-northwest, and east.

Throughout all Locations, NDs were most common, followed by descriptors relating to Spoiled Food/Decomposition then Parks and Fields/Nature. About half of NDs were recorded on the Landfill Property. Of the offsite NDs, more than one-third were recorded in the Val Verde Community. Parks and Fields/Nature descriptors recorded offsite included grass, hay, and some sweet descriptors. Over three-quarters of all Parks and Fields/Nature descriptors were recorded offsite. Spoiled Food/Decomposition-related odors were detected at the Landfill with D/Ts of <2 up to 60.

Offsite, D/T ranged from ND to 4. Hedonic tones noted at offsite locations were lowest at values of negative three at Harding South Turn, Jackson Gate, Livingston/Watertank, and Monroe/Lincoln; to positive three at Del Valle/Halsey Cyn and Chiquito Cyn/Central. Jackson Gate, Harding South Turn, and Monroe/Lincoln had odors described within the Fecal Category. Livingston/Watertank had a detection of ‘sour trash’, however dumpsters were located nearby on this day, so the descriptor could not be attributed to the Landfill. Chiquito Cyn/Central and Del Valle/Halsey Cyn had pleasant descriptors within the Fragrant/Fruity, Bakery, and Coffee Shop Categories. Two offsite Locations, Harding Lot and Madison/Lincoln, were noted to have odors described as ‘sweet, trash’, ‘faint sweet trash’, ‘faint sour trash’, at D/Ts of <2 and 2. These odors were suspected to be Landfill-related, however the trash odors were very faint. All other offsite Locations had no Landfill-related odors. The Average D/T and hedonic tone throughout the offsite Locations was 0.75 and -0.27, respectively.

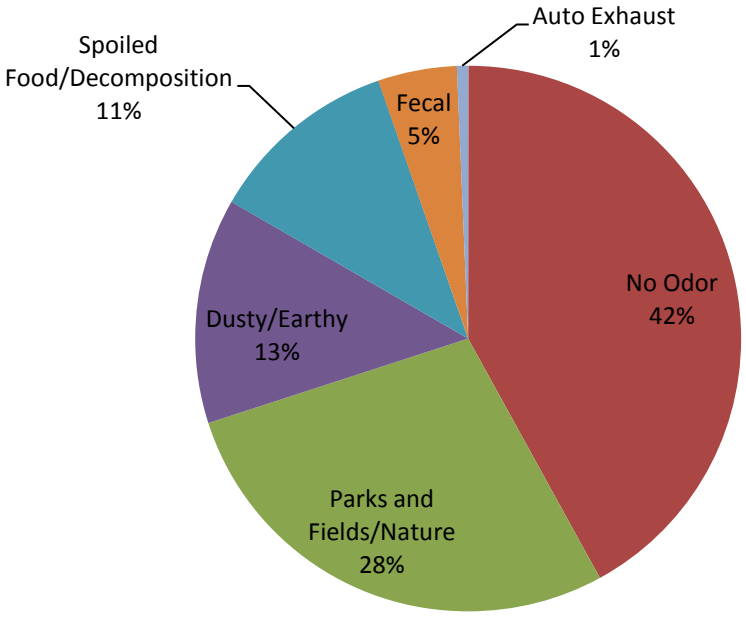
Onsite, D/Ts ranged from ND to 60. Three-quarters of observations on the Landfill noted odors lesser than or equal to 2 D/T. Observations of hedonic tone ranged from positive one to negative eight. D/T at and near the Working Face ranged between ND and 60. Odors at the Working Face were recorded as ND, Spoiled Food/Decomposition, and Musty/Moldy Compost, with descriptors such as ‘sour trash, mulch’, ‘air freshener, mulch’, ‘mulch, bologna, sweet’, and others. Hedonic tones at the Working Face ranged between -8 and -2. Other Locations onsite and not immediately near the Working Face were described within the ND, Dusty/Earthy, Spoiled Food/Decomposition, Auto Exhaust, Cleaning Solvents, and Parks and Fields/Nature Categories. Roughly half of the observations made in the other Locations throughout the Landfill were recorded as ND. One-third of detected odors at other onsite Locations were attributed to Landfill waste. The highest D/T recorded other than Locations at or near the Working Face was equal to 7 at Perimeter North, described as ‘sour trash’. The Average D/T and hedonic tone throughout the Landfill was 8.34 and -1.4, respectively.

Weather History Graph
July 16, 2015

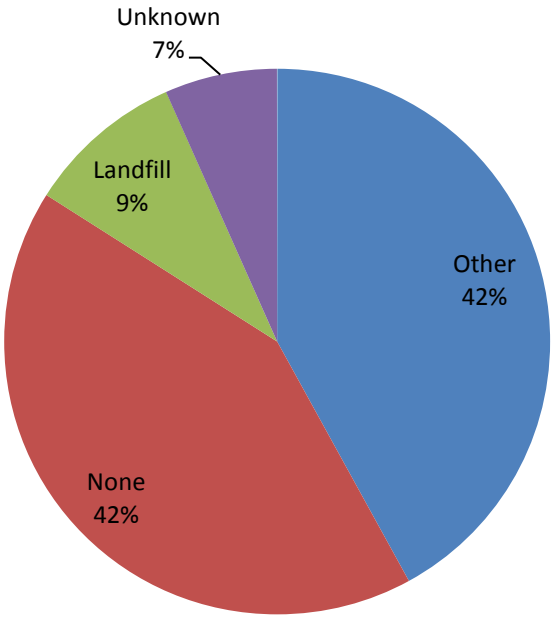


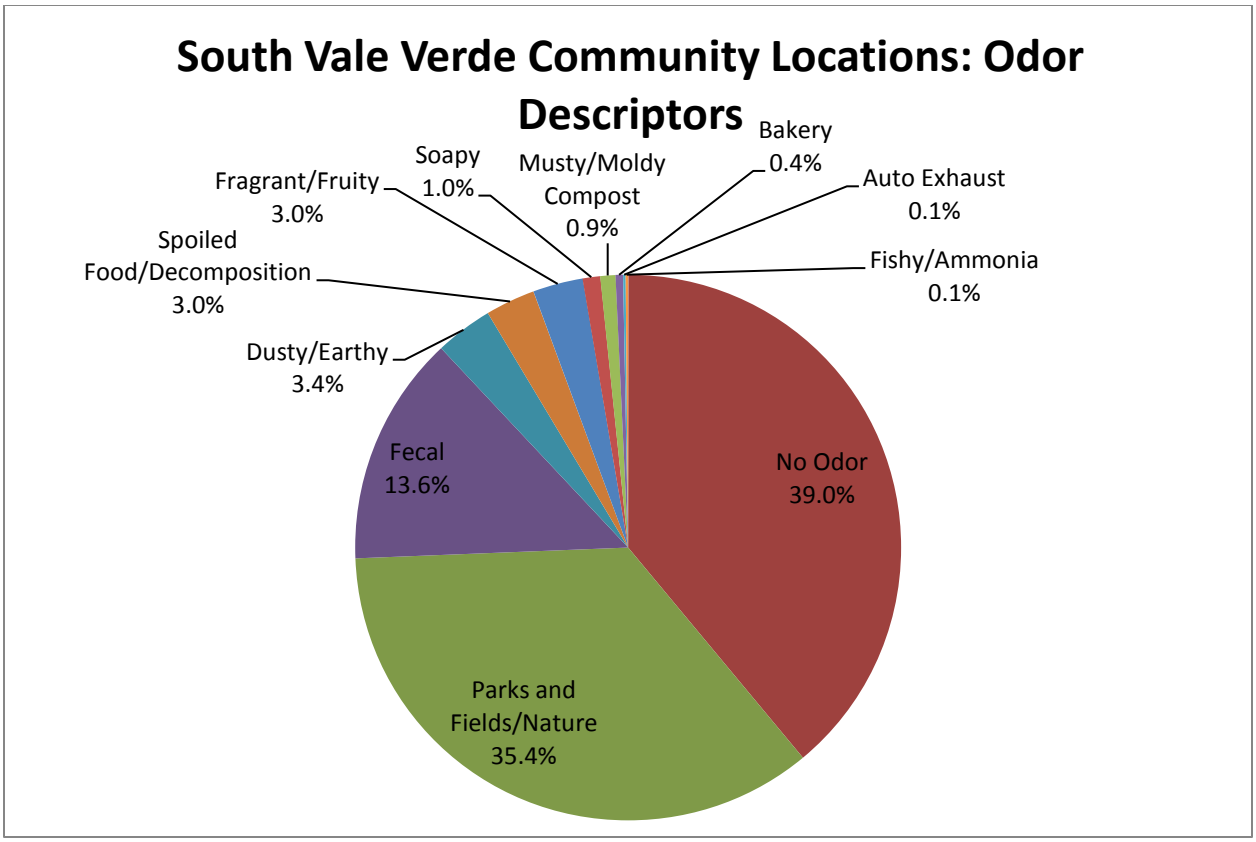
# Appendix D
# Pie Charts of Odor Descriptors and Suspected Sources for Location Groups

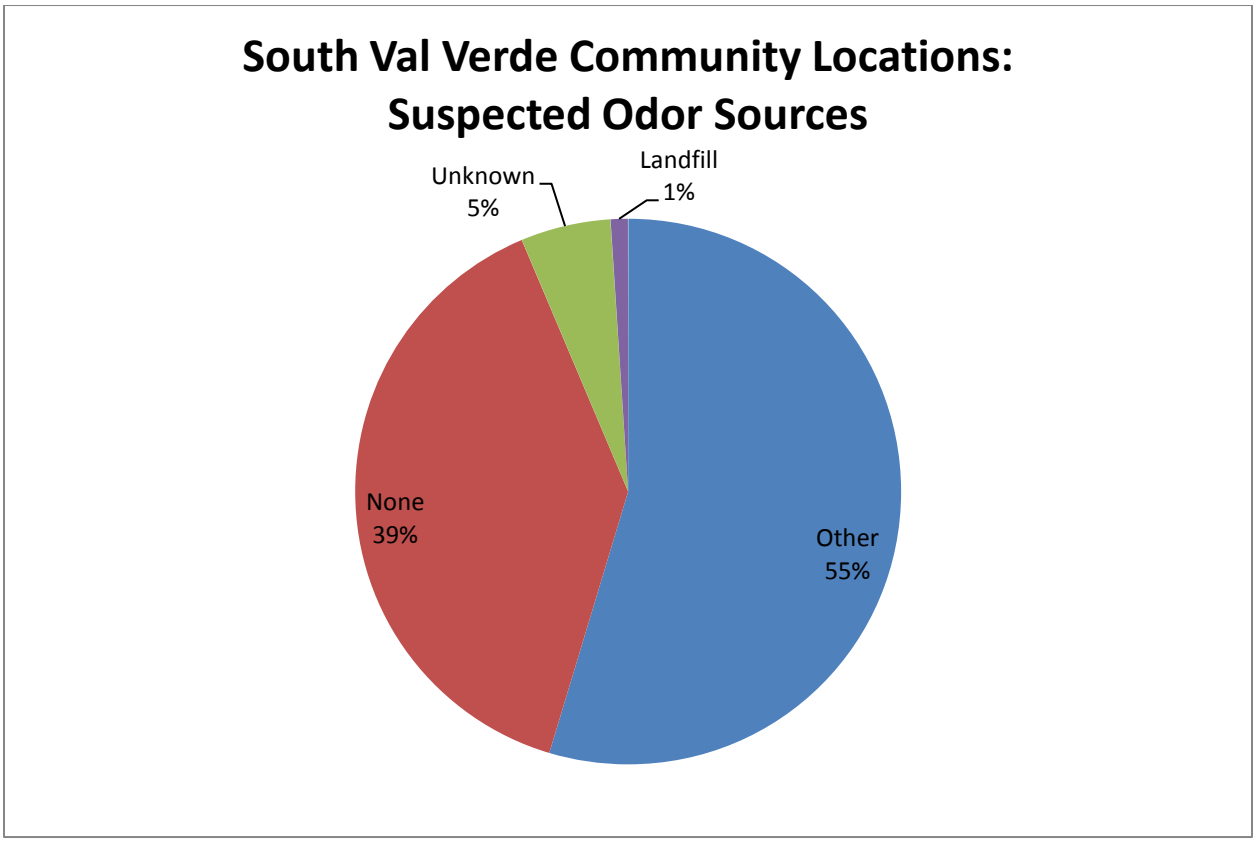
## Chiquito Canyon Locations: Odor Descriptors



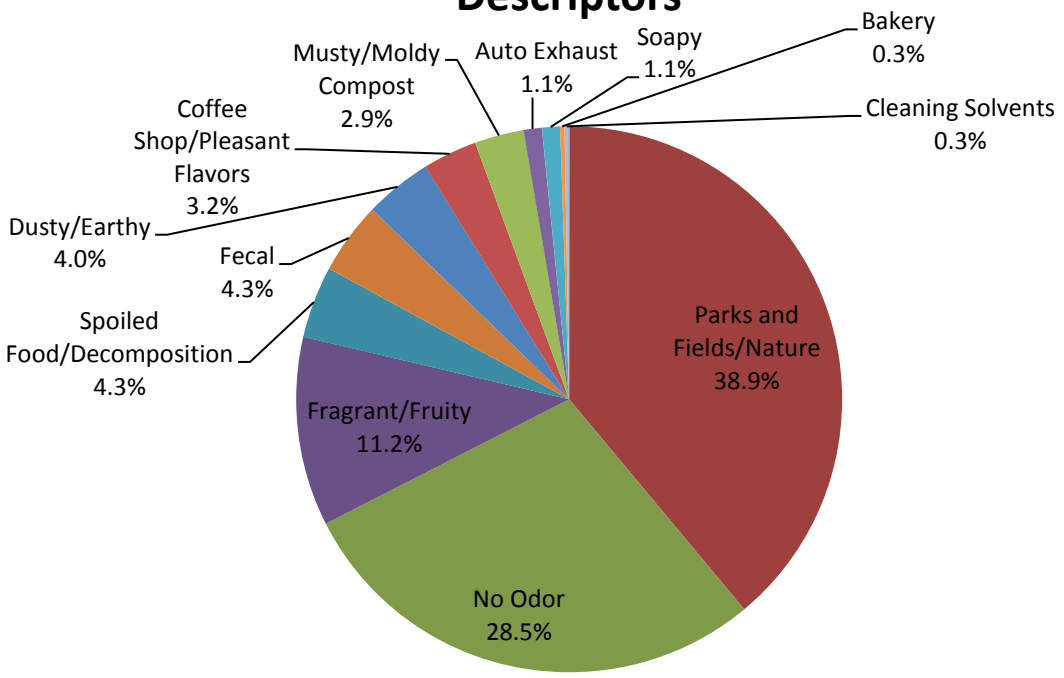

## Chiquito Canyon Locations: Suspected Odor Sources



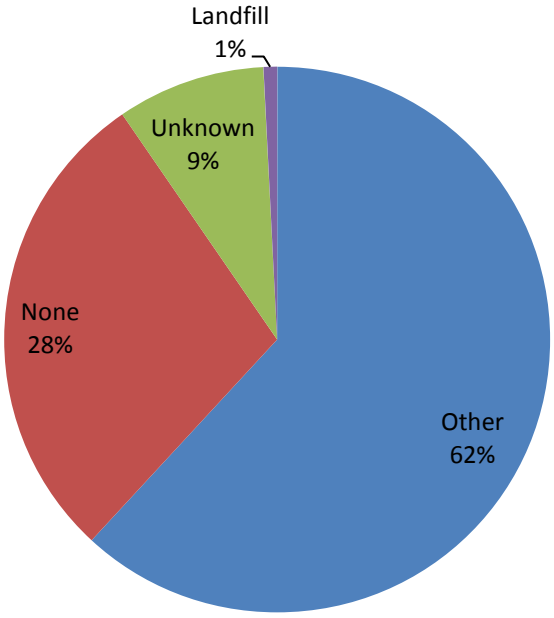

South Vale Verde Community Locations: Odor Descriptors
Bakery 0.4%
Auto Exhaust 0.1%
Fishy/Ammonia 0.1%
Musty/Moldy Compost 0.9%
Soapy 1.0%
Fragrant/Fruity 3.0%
Spoiled Food/Decomposition 3.0%
Dusty/Earthy 3.4%
Fecal 13.6%
No Odor 39.0%
Parks and Fields/Nature 35.4%


South Val Verde Community Locations: Suspected Odor Sources
Unknown 5%
Landfill 1%
None 39%
Other 55%

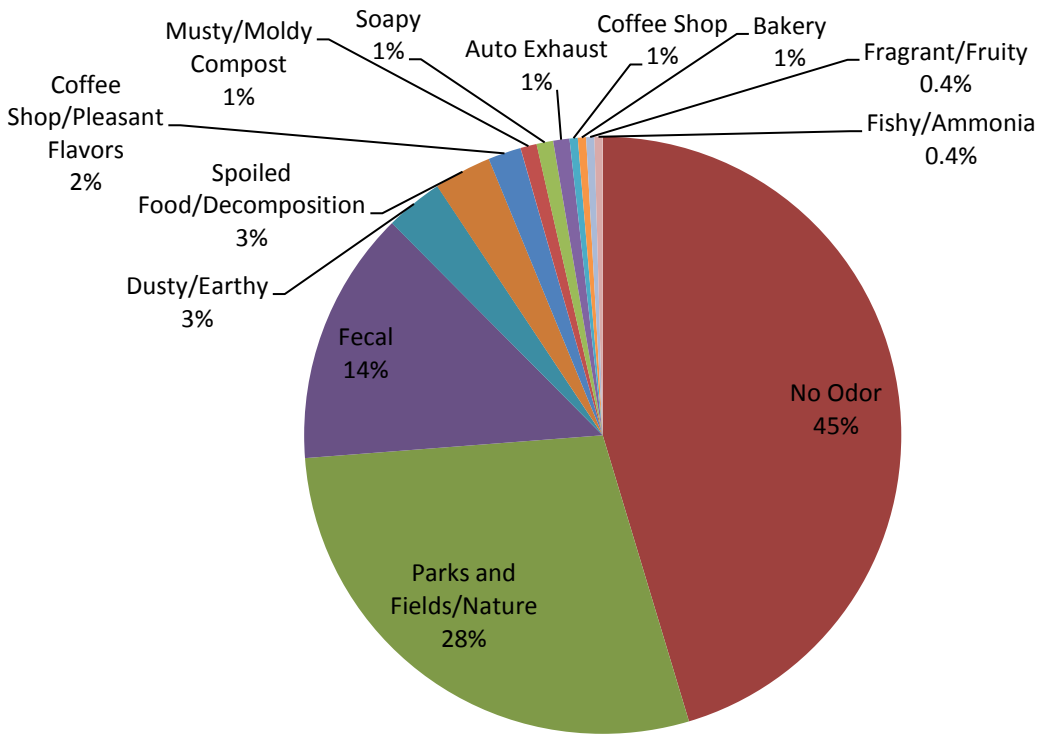
## North Val Verde Community Locations: Odor Descriptors



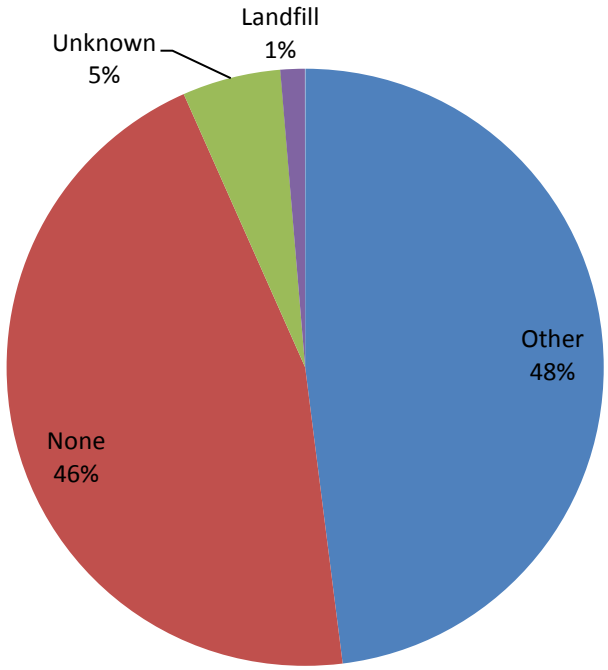

## North Val Verde Community Locations: Suspected Odor Sources



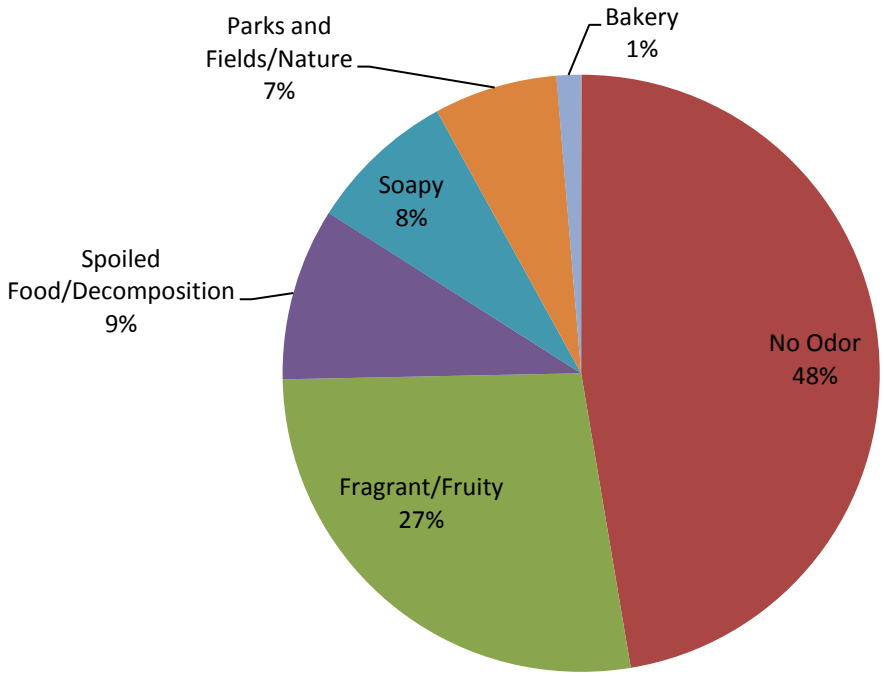
## Del Valle Locations: Odor Descriptors



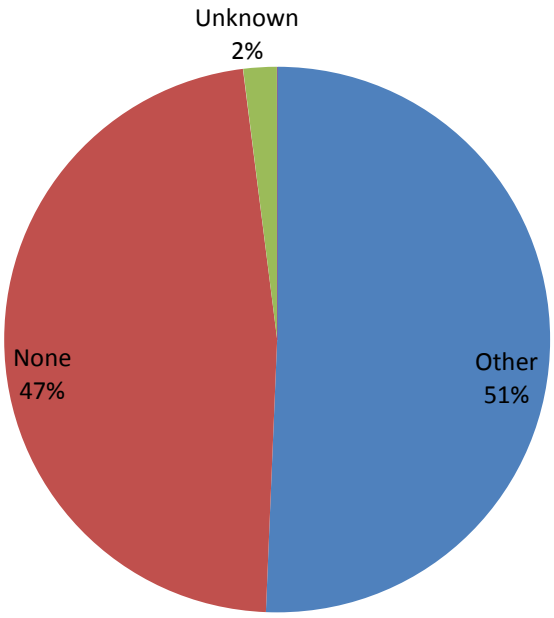

## Del Valle Locations: Suspected Odor Sources

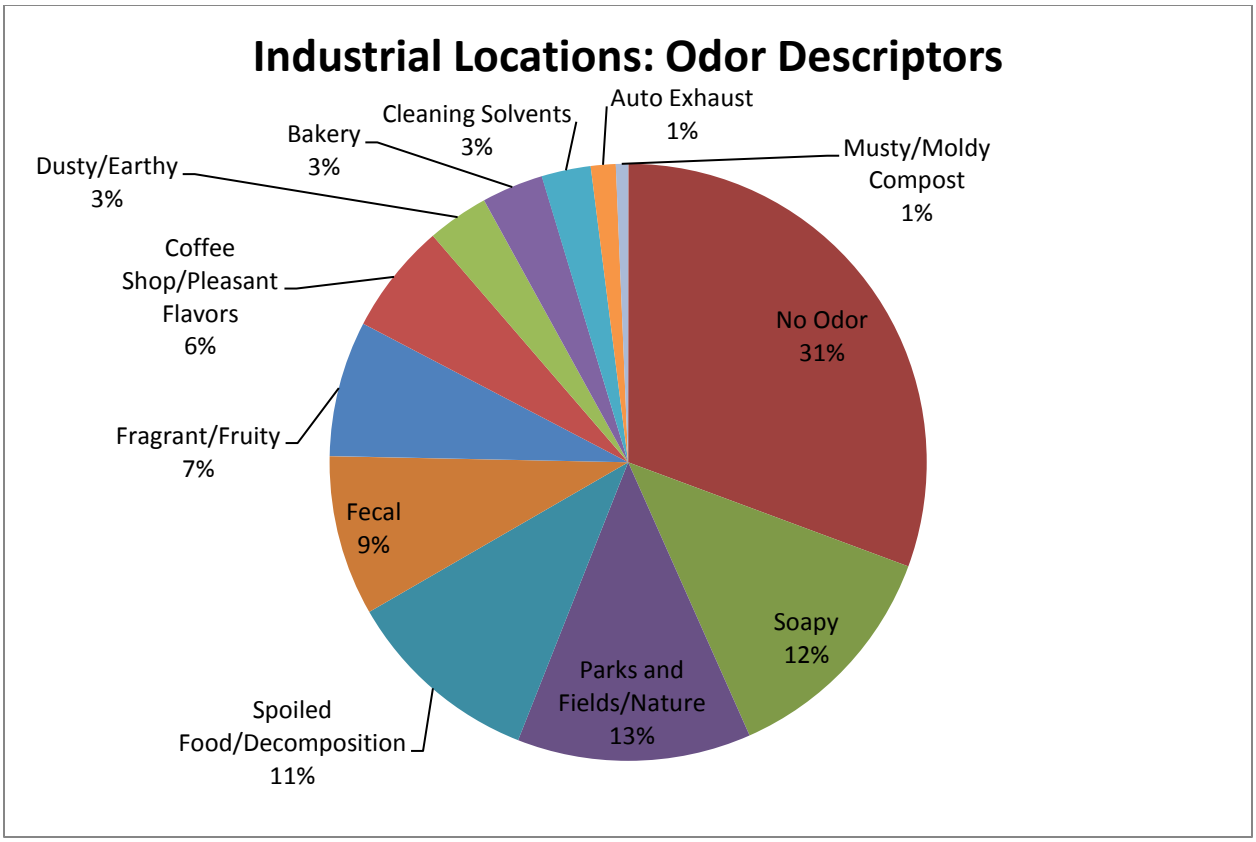


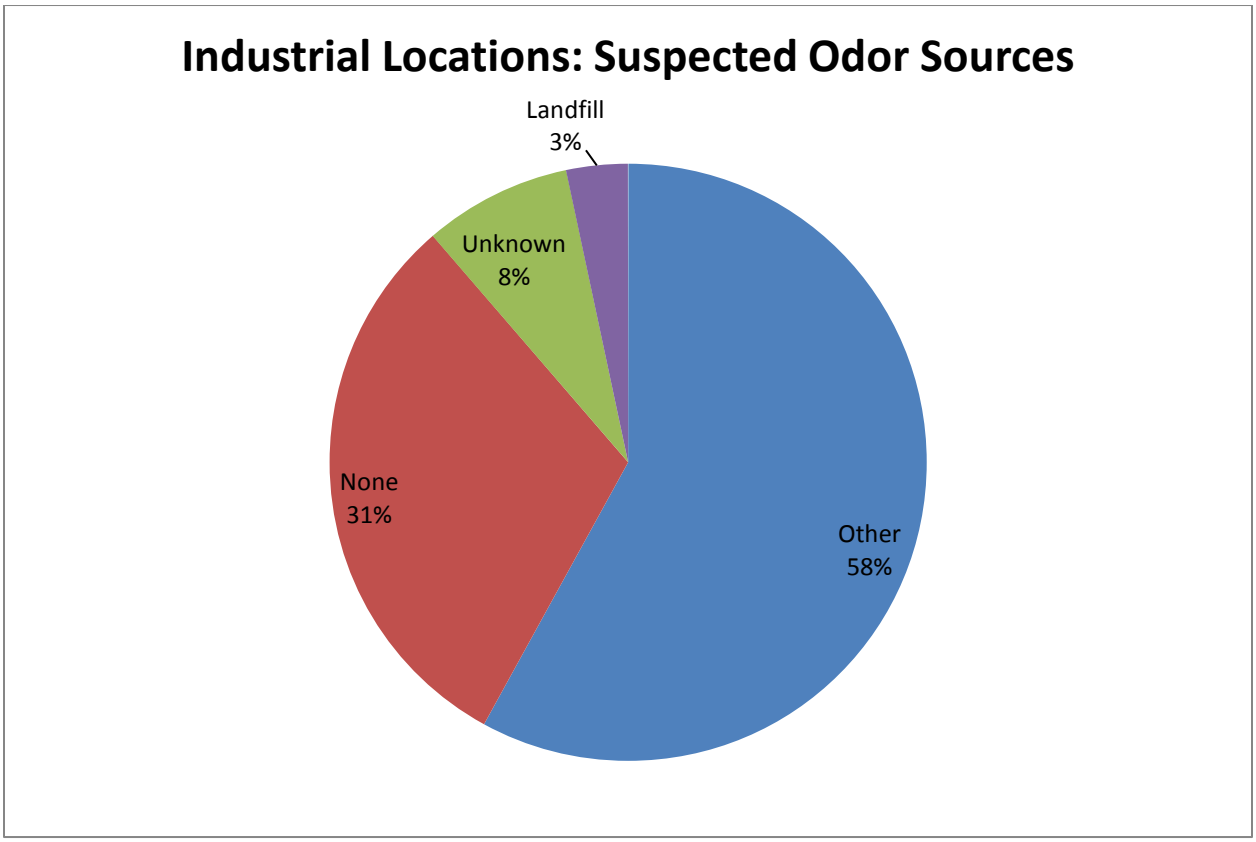
## North Community Locations: Odor Descriptors



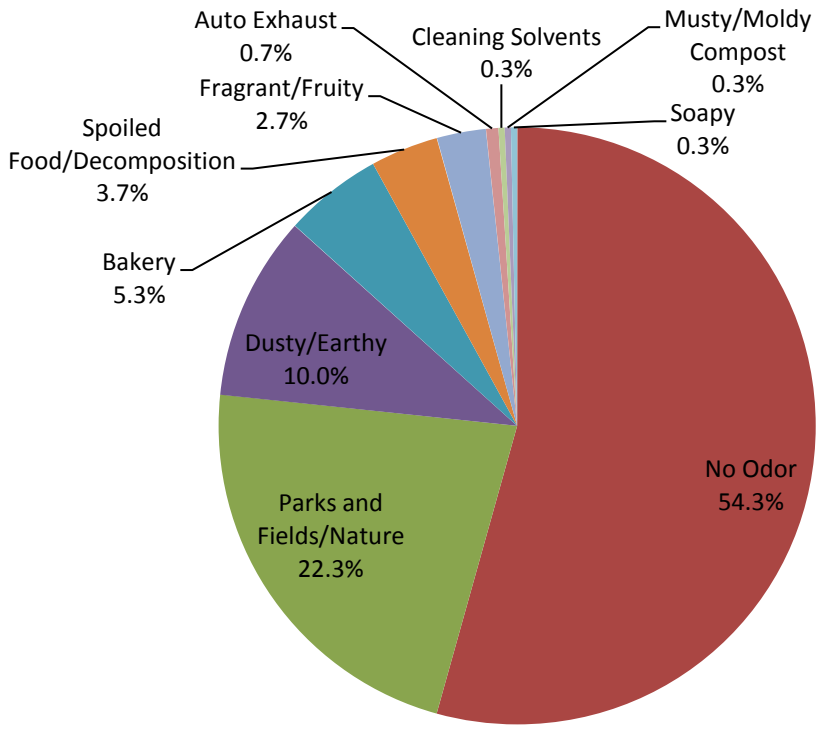

## North Community Locations: Suspected Odor Sources



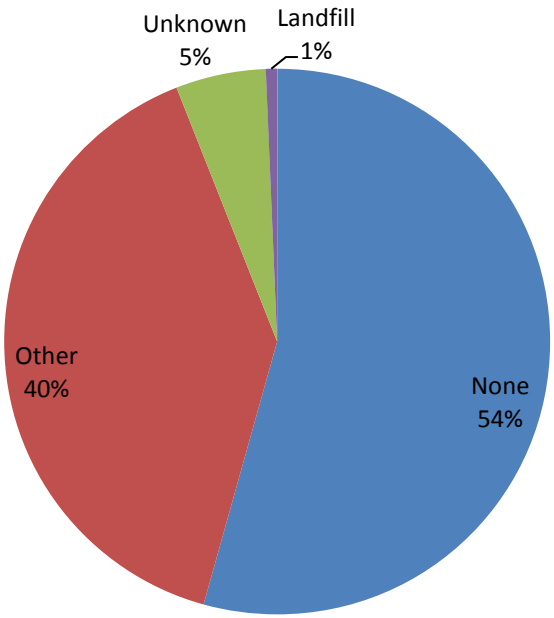

Industrial Locations: Odor Descriptors
Auto Exhaust 1%
Cleaning Solvents 3%
Bakery 3%
Dusty/Earthy 3%
Musty/Moldy Compost 1%
Coffee Shop/Pleasant Flavors 6%
No Odor 31%
Fragrant/Fruity 7%
Fecal 9%
Soapy 12%
Parks and Fields/Nature 13%
Spoiled Food/Decomposition 11%


Industrial Locations: Suspected Odor Sources
Landfill 3%
Unknown 8%
None 31%
Other 58%

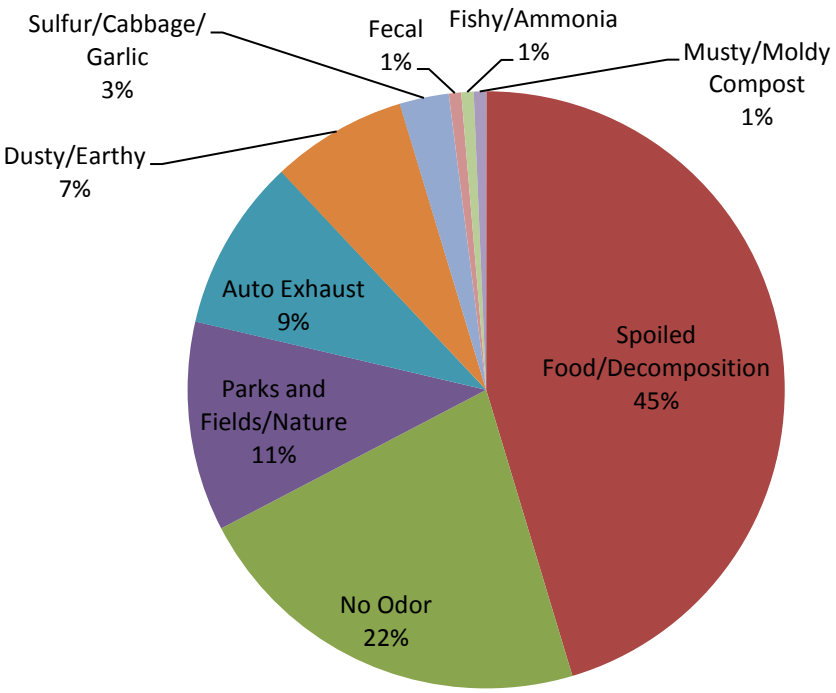
## Southeast Roads Locations: Odor Descriptors



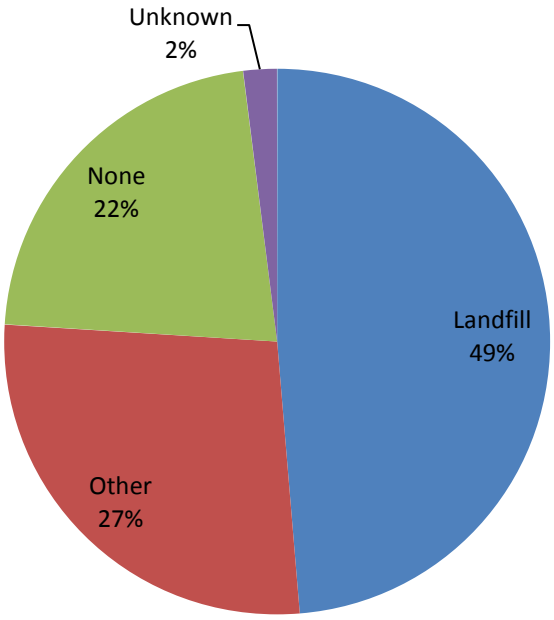

## Southeast Roads Locations: Suspected Odor Sources

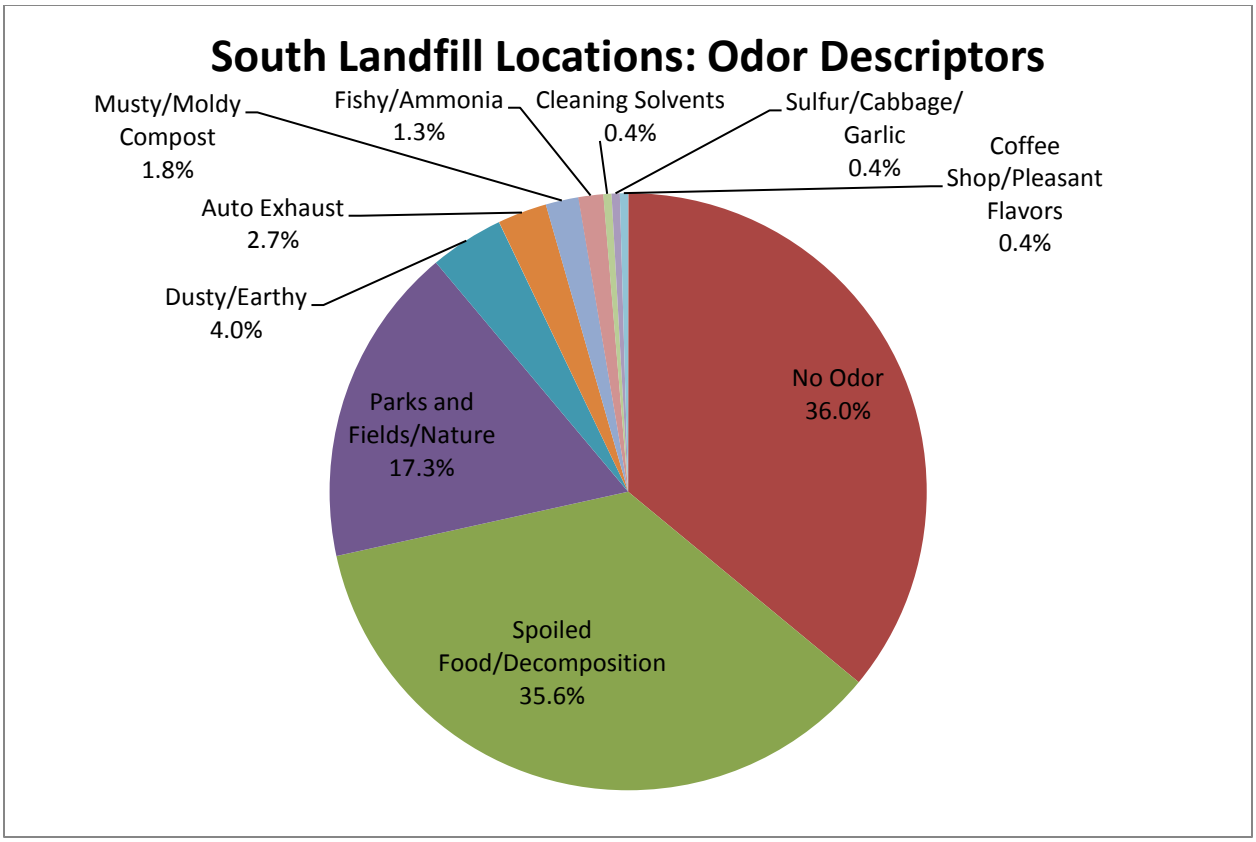


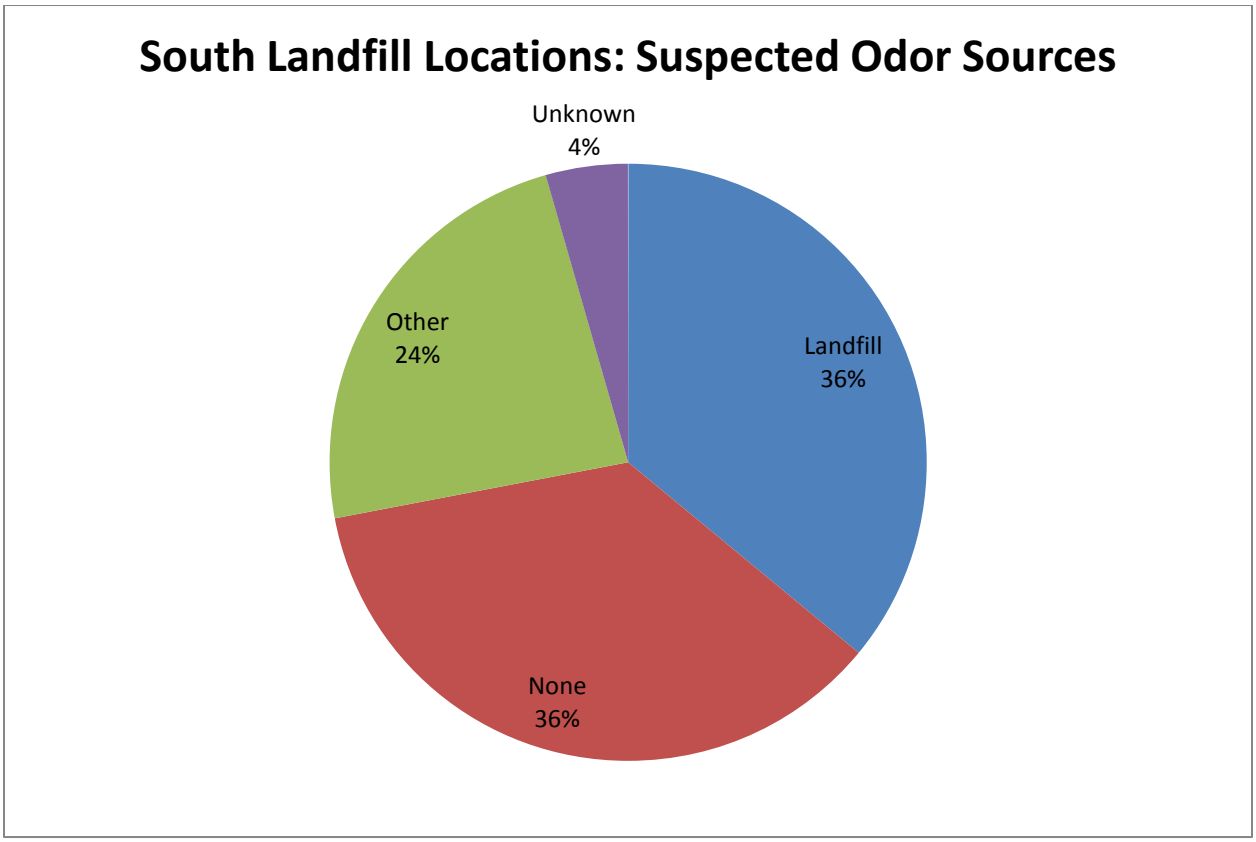
## Landfill Entrance Locations: Odor Descriptors



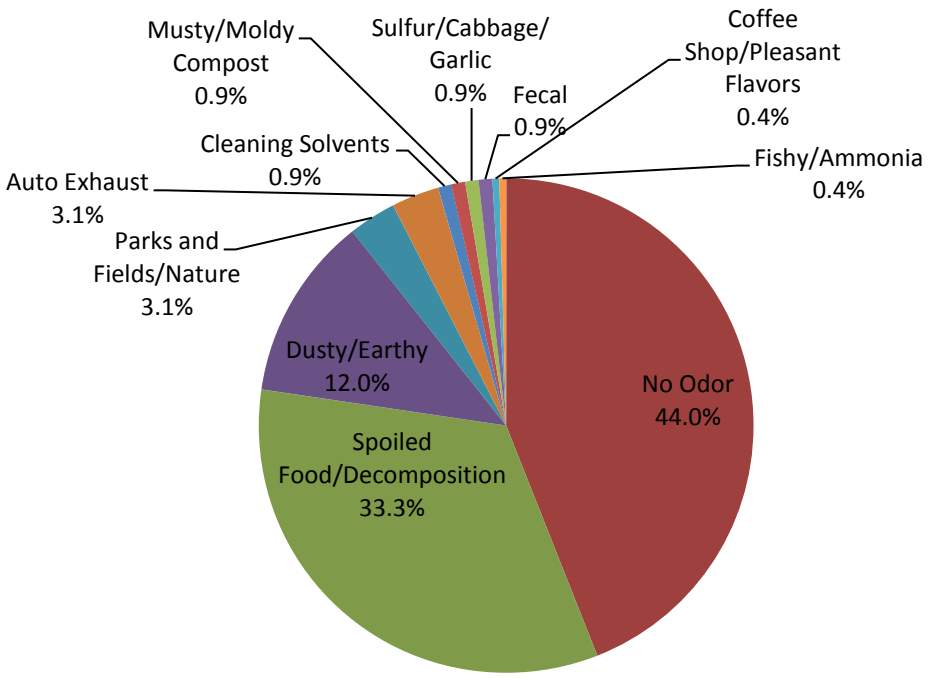

## Landfill Entrance Locations: Suspected Odor Sources



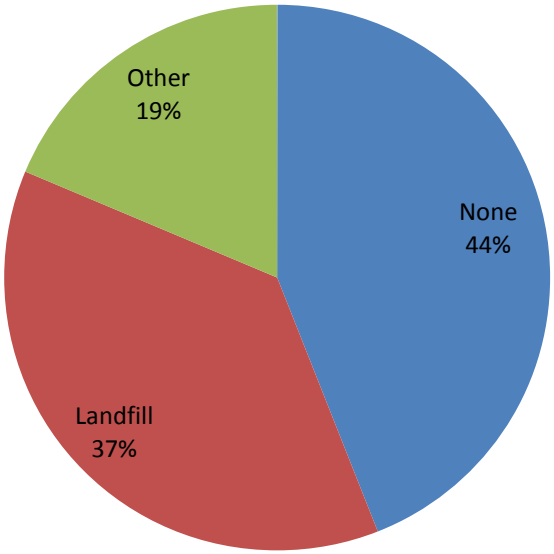

South Landfill Locations: Odor Descriptors
Musty/Moldy Compost 1.8%
Fishy/Ammonia 1.3%
Cleaning Solvents 0.4%
Sulfur/Cabbage/ Garlic 0.4%
Coffee Shop/Pleasant Flavors 0.4%
Auto Exhaust 2.7%
Dusty/Earthy 4.0%
Parks and Fields/Nature 17.3%
No Odor 36.0%
Spoiled Food/Decomposition 35.6%


South Landfill Locations: Suspected Odor Sources
Unknown 4%
Other 24%
Landfill 36%
None 36%

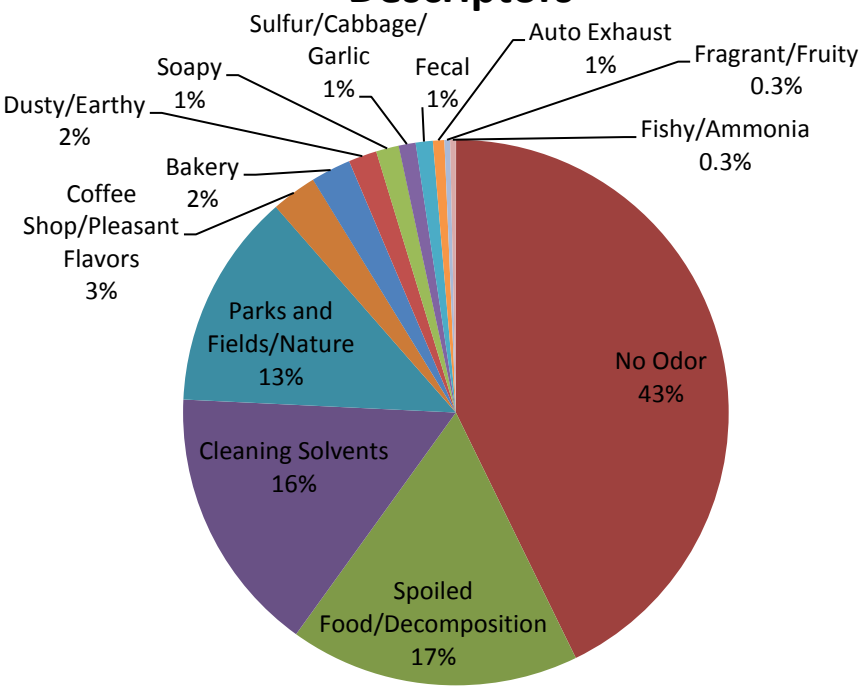
## Southeast Landfill Perimeter Locations: Odor Descriptors



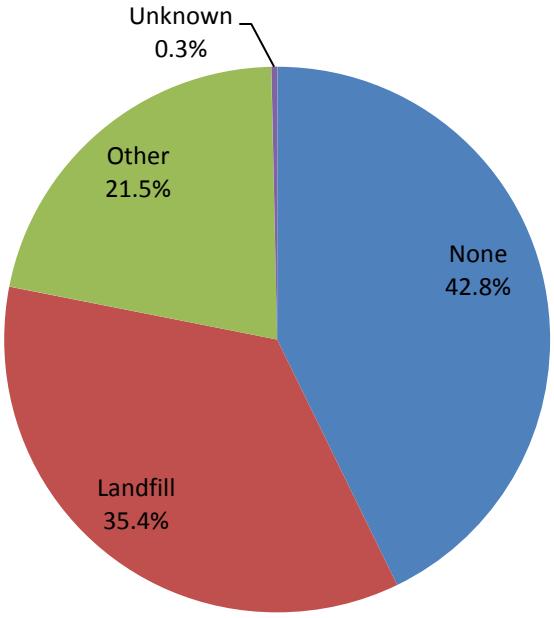

## Southeast Landfill Perimeter Locations: Suspected Odor Sources



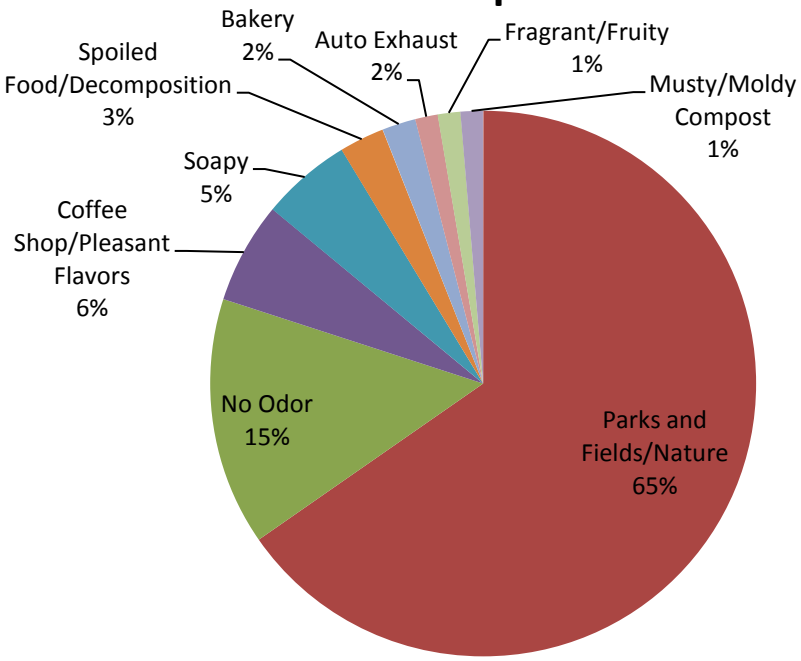
## North Landfill Perimeter Locations: Odor Descriptors



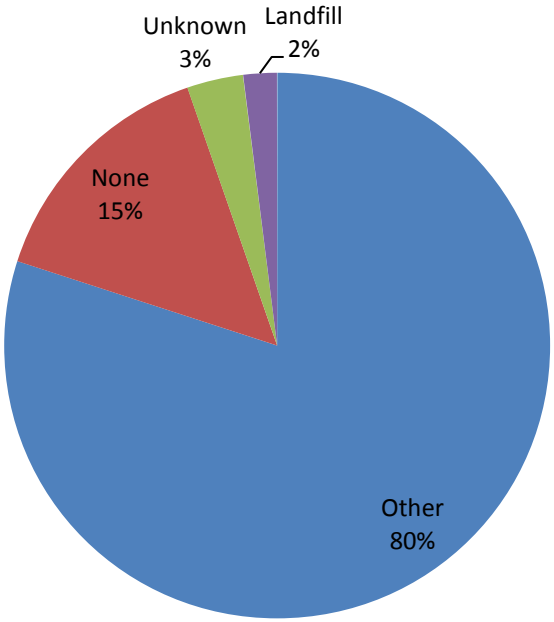

## North Landfill Perimeter Locations: Suspected Odor Sources

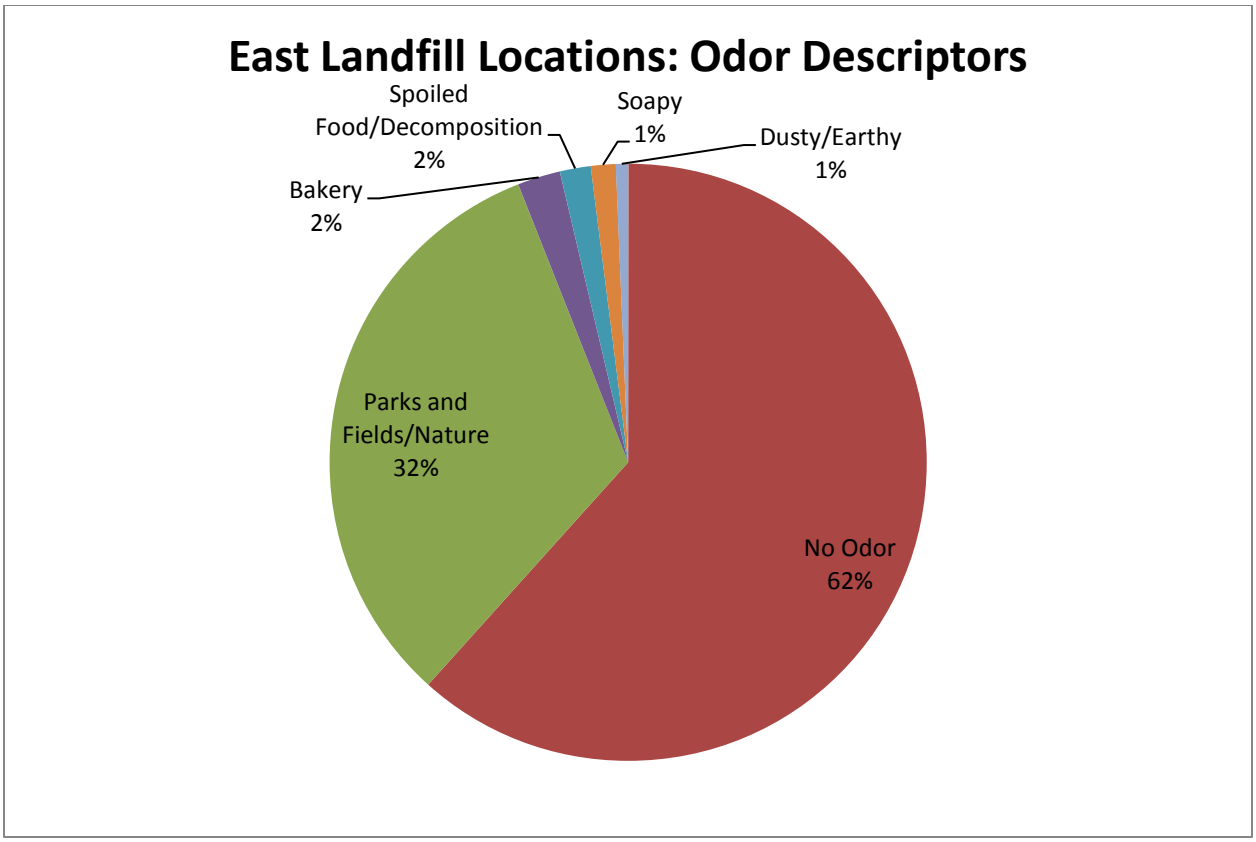


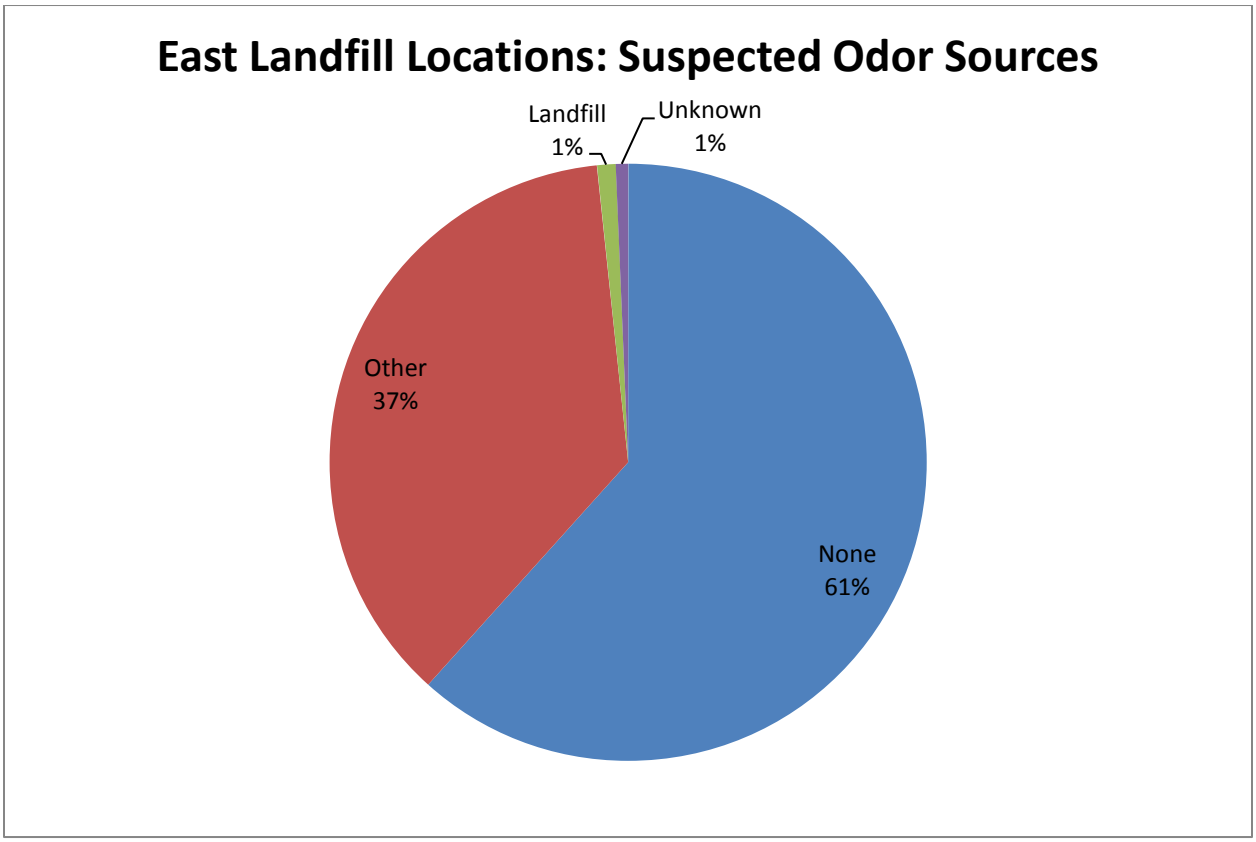
## Northeast Landfill Ridgeline Locations: Odor Descriptors

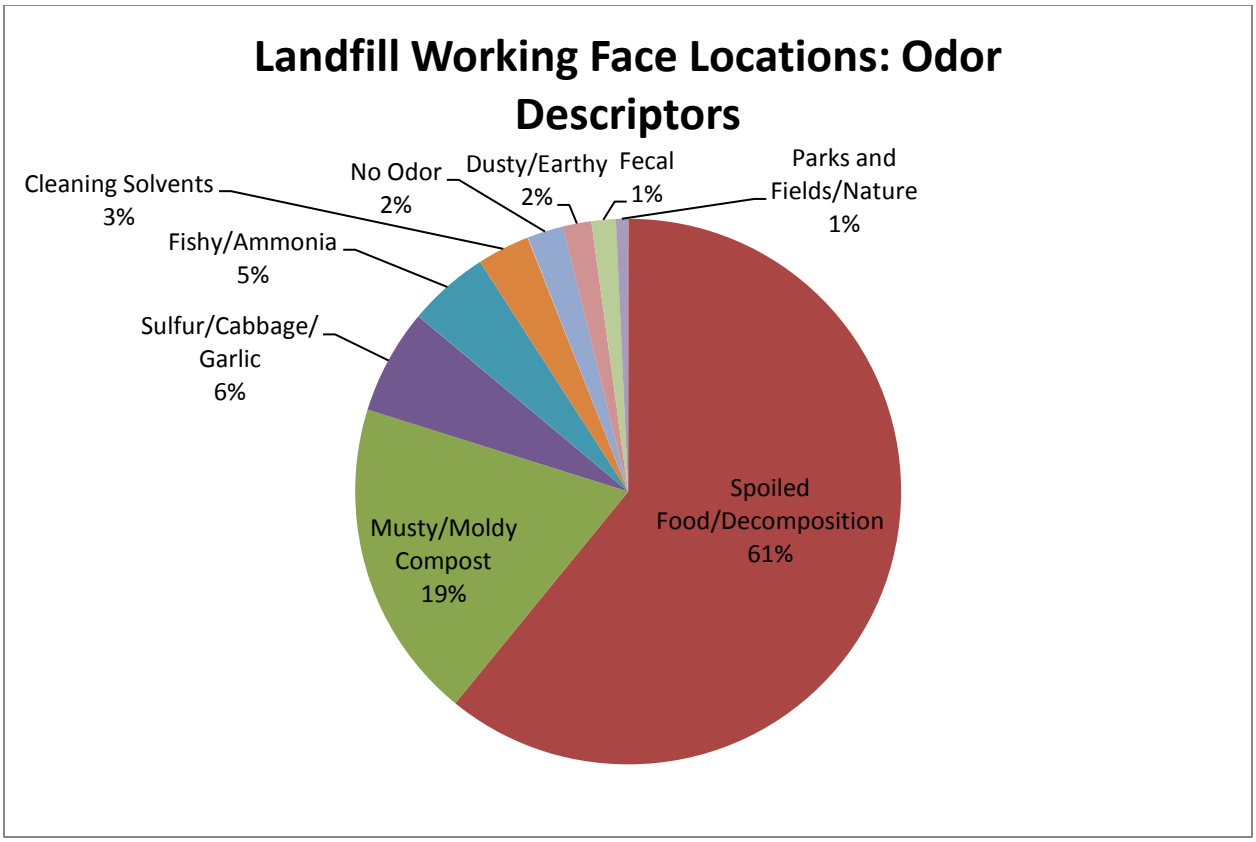


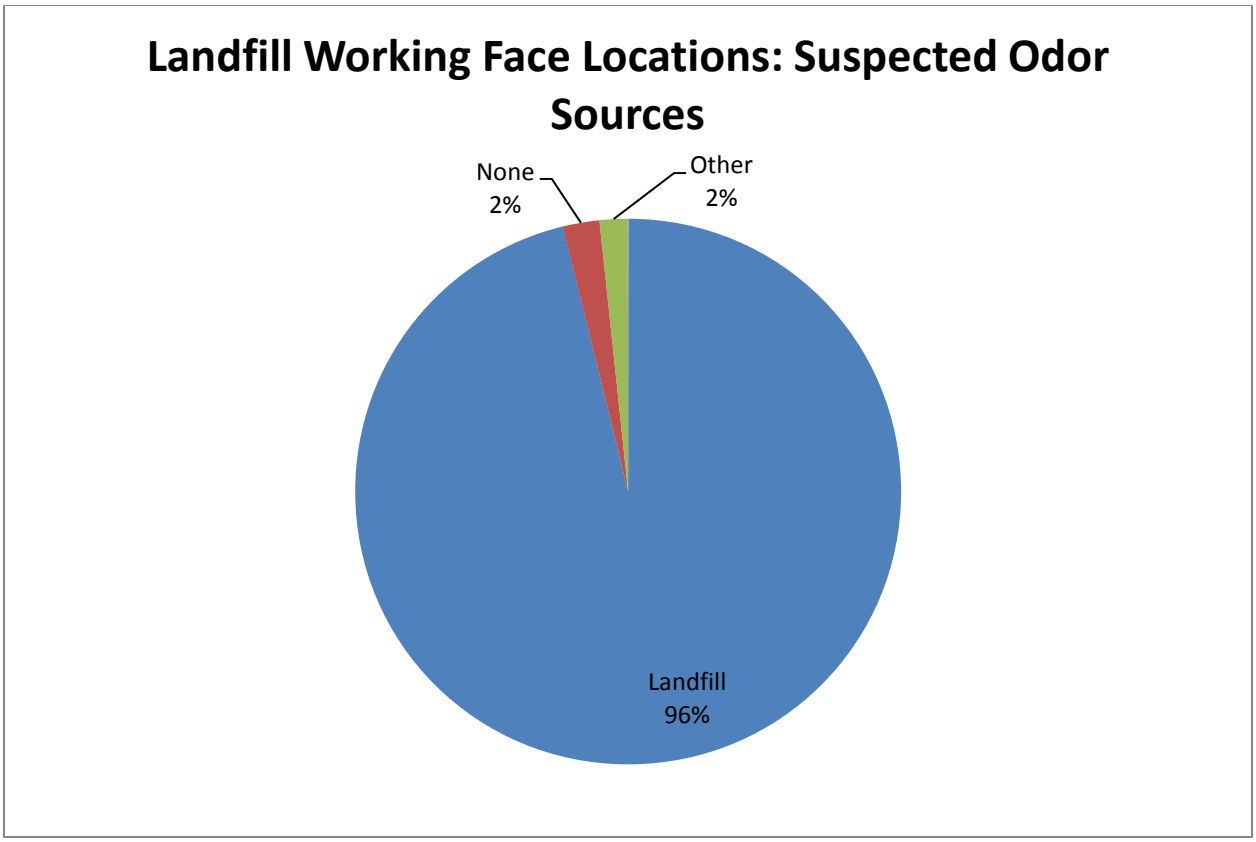

## Northeast Landfill Ridgeline Locations: Suspected Odor Sources




East Landfill Locations: Odor Descriptors
Spoiled Food/Decomposition 2%
Soapy 1%
Dusty/Earthy 1%
Bakery 2%
Parks and Fields/Nature 32%
No Odor 62%


East Landfill Locations: Suspected Odor Sources
Landfill 1%
Unknown 1%
Other 37%
None 61%


Landfill Working Face Locations: Odor Descriptors
Cleaning Solvents 3%
No Odor 2%
Dusty/Earthy 2%
Fecal 1%
Parks and Fields/Nature 1%
Fishy/Ammonia 5%
Sulfur/Cabbage/ Garlic 6%
Musty/Moldy Compost 19%
Spoiled Food/Decomposition 61%


Landfill Working Face Locations: Suspected Odor Sources
None 2%
Other 2%
Landfill 96%

# Attachment 1
# Curriculum Vitae of Dr. Paul Rosenfeld

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

**SOIL WATER AIR PROTECTION ENTERPRISE**
2656 29th Street, Suite 201
Santa Monica, California 90405
Attn: Paul Rosenfeld, Ph.D.
Mobil: (310) 795-2335
Office: (310) 452-5555
Fax: (310) 452-5550
Email: prosenfeld@swape.com

# *Paul Rosenfeld, Ph.D.*

**Chemical Fate and Transport & Air Dispersion Modeling**

*Principal Environmental Chemist*

**Risk Assessment & Remediation Specialist**

## Education:

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on VOC filtration.
M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.
B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

## Professional Experience:

Dr. Rosenfeld is the Co-Founder and Principal Environmental Chemist at Soil Water Air Protection Enterprise (SWAPE). His focus is the fate and transport of environmental contaminants, risk assessment, and ecological restoration. Dr. Rosenfeld has a doctorate in soil chemistry and has evaluated odors from biosolids applications to soil and the effect of biosolids to agricultural crops. Dr. Rosenfeld has also evaluated odor emissions from the compost and food industry. His project experience ranges from monitoring and modeling of pollution sources as they relate to human and ecological health. Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing petroleum, chlorinated solvents, pesticides, radioactive waste, PCBs, PAHs, dioxins, furans, volatile organics, semi-volatile organics, perchlorate, heavy metals, asbestos, PFOA, unusual polymers, MtBE, fuel oxygenates and odor. Dr. Rosenfeld has also evaluated and modeled emissions from fracking, boilers, incinerators and other industrial and agricultural sources relating to nuisance and personal injury. Dr. Rosenfeld has evaluated greenhouse gas emissions using various modeling programs recommended by California Air Quality Management Districts.

## Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex $H_2O$ Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist

Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist
Bureau of Land Management, Kremmling Colorado 1990; Scientist

## **Publications**:

Chen, J. A., Zapata, A R., Sutherland, A. J., Molmen, D. R,. Chow, B. S., Wu, L. E., **Rosenfeld, P. E.,** Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermod and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

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**Rosenfeld, P. E. (**1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

**Rosenfeld, P. E.** (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

**Rosenfeld, P. E. (**1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

## Presentations:

**Rosenfeld, P.E.,** Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society.* Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution.* Lecture conducted from Boston, MA.

**Rosenfeld, P.E**. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

**Rosenfeld, P.E.** (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

**Rosenfeld, P. E.** (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water.* Platform lecture conducted from University of Massachusetts, Amherst MA.

**Rosenfeld, P. E.** (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant*. The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

**Rosenfeld, P. E.** (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

**Rosenfeld P. E.** (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

**Rosenfeld P. E.** (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

**Paul Rosenfeld Ph.D**. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

**Paul Rosenfeld Ph.D**. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

**Paul Rosenfeld Ph.D**. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

**Paul Rosenfeld Ph.D**. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

**Paul Rosenfeld Ph.D**. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

**Paul Rosenfeld Ph.D**. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

**Paul Rosenfeld Ph.D**. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

**Paul Rosenfeld, Ph.D.** and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

**Paul Rosenfeld, Ph.D.** (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

**Paul Rosenfeld, Ph.D.** (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

**Rosenfeld, P. E**., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

**Paul Rosenfeld, Ph.D.** and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

**Paul Rosenfeld, Ph.D.** (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

**Paul Rosenfeld, Ph.D**. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

**Rosenfeld, P.E**. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

**Rosenfeld, P.E**. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

**Rosenfeld, P.E.** and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

**Rosenfeld, P.E**. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

**Rosenfeld. P.E.** (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

**Rosenfeld. P.E. (**October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

**Rosenfeld, P.E. (**2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

**Rosenfeld, P.E**., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

**Rosenfeld, P.E.**, and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

**Rosenfeld, P.E.**, C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

**Rosenfeld, P.E.**, C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

**Rosenfeld, P.E,** C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

**Rosenfeld, P.E.**, C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

## Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

## Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993.

## Deposition and/or Trial Testimony:

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma
Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.
Case No. 5:12-cv-01152-C
Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the Court of Common Pleas for the Second Judicial Circuit, State of South Carolina, County of Aiken
David Anderson, et al., *Plaintiffs*, vs. Norfolk Southern Corporation, et al., *Defendants*.
Case Number: 2007-CP-02-1584

In the Circuit Court of Jefferson County Alabama
Jaeanette Moss Anthony, et al., *Plaintiffs*, vs. Drummond Company Inc., et al., *Defendants*
Civil Action No. CV 2008-2076
Rosenfeld Deposition: September 2010

In the Ninth Judicial District Court, Parish of Rapides, State of Louisiana
Roger Price, et al., *Plaintiffs*, vs. Roy O. Martin, L.P., et al., *Defendants*.
Civil Suit Number 224,041 Division G
Rosenfeld Deposition: September 2008

In the United States District Court, Western District Lafayette Division
Ackle et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants*.
Case Number 2:07CV1052
Rosenfeld Deposition: July 2009

In the United States District Court for the Southern District of Ohio
Carolyn Baker, et al., *Plaintiffs*, vs. Chevron Oil Company, et al., *Defendants*.
Case Number 1:05 CV 227
Rosenfeld Deposition: July 2008

In the Fourth Judicial District Court, Parish of Calcasieu, State of Louisiana

Craig Steven Arabie, et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants*.
Case Number 07-2738 G

In the Fourteenth Judicial District Court, Parish of Calcasieu, State of Louisiana
Leon B. Brydels, *Plaintiffs*, vs. Conoco, Inc., et al*., Defendants.*
Case Number 2004-6941 Division A

In the District Court of Tarrant County, Texas, 153rd Judicial District
Linda Faust, *Plaintiff*, vs. Burlington Northern Santa Fe Rail Way Company, Witco Chemical Corporation A/K/A Witco Corporation, Solvents and Chemicals, Inc. and Koppers Industries, Inc., *Defendants*.
Case Number 153-212928-05
Rosenfeld Deposition: December 2006, October 2007
Rosenfeld Trial: January 2008

In the Superior Court of the State of California in and for the County of San Bernardino
Leroy Allen, et al., *Plaintiffs*, vs. Nutro Products, Inc., a California Corporation and DOES 1 to 100, inclusive, *Defendants*.
John Loney, Plaintiff, vs. James H. Didion, Sr.; Nutro Products, Inc.; DOES 1 through 20, inclusive, *Defendants*.
Case Number VCVVS044671
Rosenfeld Deposition: December 2009
Rosenfeld Trial: March 2010

In the United States District Court for the Middle District of Alabama, Northern Division
James K. Benefield, et al., *Plaintiffs*, vs. International Paper Company, *Defendant*.
Civil Action Number 2:09-cv-232-WHA-TFM
Rosenfeld Deposition: July 2010, June 2011

In the Superior Court of the State of California in and for the County of Los Angeles
Leslie Hensley and Rick Hensley, *Plaintiffs*, vs. Peter T. Hoss, as trustee on behalf of the Cone Fee Trust; Plains Exploration & Production Company, a Delaware corporation; Rayne Water Conditioning, Inc., a California Corporation; and DOES 1 through 100, *Defendants.*
Case Number SC094173
Rosenfeld Deposition: September 2008, October 2008

In the Superior Court of the State of California in and for the County of Santa Barbara, Santa Maria Branch
Clifford and Shirley Adelhelm, et al., all individually, *Plaintiffs*, vs. Unocal Corporation, a Delaware Corporation; Union Oil Company of California, a California corporation; Chevron Corporation, a California corporation; ConocoPhillips, a Texas corporation; Kerr-McGee Corporation, an Oklahoma corporation; and DOES 1 though 100, *Defendants.*
Case Number 1229251 (Consolidated with case number 1231299)
Rosenfeld Deposition: January 2008

In the United States District Court for Eastern District of Arkansas, Eastern District of Arkansas
Harry Stephens Farms, Inc, and Harry Stephens, individual and as managing partner of Stephens Partnership, *Plaintiffs*, vs. Helena Chemical Company, and Exxon Mobil Corp., successor to Mobil Chemical Co., *Defendants.*
Case Number 2:06-CV-00166 JMM (Consolidated with case number 4:07CV00278 JMM)
Rosenfeld Deposition: July 2010

In the United States District Court for the Western District of Arkansas, Texarkana Division
Rhonda Brasel, et al., *Plaintiffs*, vs. Weyerhaeuser Company and DOES 1 through 100, *Defendants.*
Civil Action Number 07-4037
Rosenfeld Deposition: March 2010
Rosenfeld Trial: October 2010

In the District Court of Texas 21st Judicial District of Burleson County
Dennis Davis, *Plaintiff*, vs. Burlington Northern Santa Fe Rail Way Company, *Defendant.*
Case Number 25,151
Rosenfeld Trial: May 2009

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
Case 3:10-cv-00622
Rosenfeld Deposition: February 2012
Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland
Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
Case Number: 03-C-12-012487 OT
Rosenfeld Deposition: September 2013

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November 4, 2016
File No. 01202278.01

Mike Zischke and David Waite
Cox Castle and Nicholson
2029 Century Park East
Los Angeles CA 90067

Subject: Supplemental Air Quality Impact Assessment for Chiquita Landfill Compost Operation – Privileged and Confidential – Attorney Client Work Product

Dear Mike:

Per your request, SCS Engineers (SCS) is pleased to provide to Waste Connections, Inc. (WCI) this supplemental air quality impact evaluation for the proposed composting operation at Chiquita Canyon Landfill (Chiquita or Site) in Castiac, California. This supplemental air quality impact assessment (AQIA) would be used in the California Environmental Quality Act (CEQA) process for the proposed expansion of the Chiquita Canyon Landfill.

This analysis provides a quantitative assessment of emissions for the proposed composting operation, which can be integrated into the comprehensive analysis of air quality for the project in a recirculated chapter of the Draft Environmental Impact Report (EIR).

## PROJECT SUMMARY

The impacts from landfill expansion-related emissions have been evaluated in the existing Draft EIR; however, the Project also includes composting 560 tons per day (tpd). Composting has previously occurred at the facility, but composting operations have not been performed for several years. Due to the disuse of formerly permitted composting capacity, the baseline composting operation for the purposes of this evaluation is no composting operation. All 560 tpd of composting operation proposed as part of the Project are considered "new" for purposes of this analysis.

The proposed composting operation will potentially be subject to South Coast Air Quality Management District (SCAQMD) composting rules, which include Rules 1133, 1133.1, 1133.2, and 1133.3. Rule 1133 requires that the composting operation obtain a permit to operate. Rule 1133.1 requires that chipping and grinding operations associated with composting operations maintain best management practices to prevent emissions. Rule 1133.2 imposes control requirements on co-composting operations which have waste streams that include more than 20 percent biosolids and/or manure. Rule 1133.3 imposes control requirements on greenwaste composting operations, including composting operations that combine greenwaste and food composting.

The operational details of the composting operation have not been selected at this early stage; however, it is known that the facility is expected to compost a mixed organics waste stream, including greenwaste and food waste. SCAQMD Rule 1133.3 requires composting operations with less than ten percent foodwaste to follow proscribed best management practices (BMPs). These BMPs include turning, watering, and covering the active composting phase with a finished compost cover and are expected to achieve emission reductions of 40 percent for volatile organic compounds (VOCs) and 20 percent for ammonia. Composting operations with more than ten percent foodwaste are required to achieve a control efficiency of 80 percent for both VOC and ammonia emissions. This 80 percent level of control is expected to require covered, aerated composting with control of VOCs using a biofilter. Developers are allowed, however, to propose alternative technologies to control VOC emissions.

## EMISSIONS

There are three types of sources associated with air pollutant emissions that would result from the proposed composting operation. The first source is the composting operation itself. The composting process is a source of VOCs and ammonia, which must be permitted and controlled as required by SCAQMD Rule 1133.3. The second type of source associated with composting operations is mobile and portable equipment such as loaders and screens. These sources do not require a SCAQMD permit; nevertheless, they emit air pollutants that can contribute to poor air quality. The final source type is construction of the composting facility. Construction emissions are emitted only during the construction of a facility and result from the equipment used in construction, soil operations to prepare the site, and other temporary sources.

### Process Emissions

Rule 1133.3 requires the use an emission factor of 4.25 pounds of VOC per ton feedstock during the active phase and 0.42 pounds of VOC per ton feedstock during the curing phase and 0.46 pounds of ammonia per ton during active composting and 0.20 pounds of ammonia per ton of feedstock during curing for the composting operation. The first scenario assumes that the composted material includes more than ten percent foodwaste and is subject to the control requirements that are expected to result in a control efficiency of 80 percent. ***Table 1*** shows the VOC emissions from the composting process. The composting operation will also generate ammonia emissions; however, there is no SCAQMD CEQA standard for ammonia emissions. Ammonia does pose a health risk, which must be addressed during permitting of the composting operation.

**Table 1 - Chiquita Canyon Compost Operation VOC Emissions - Greater than 10% Foodwaste**

| Process Rate | VOC Emission Factor | Uncontrolled VOC Emissions | Controlled VOC Emissions | Ammonia Emission Factor | Uncontrolled Ammonia Emissions | Controlled Ammonia Emissions |
|---|---|---|---|---|---|---|
| (tpd) | (lb/ton processed) | (lb/day) | (lb/day) | (lb/ton processed) | (lb/day) | (lb/day) |
| 560 | 4.67 | 2,615 | 523 | 0.66 | 370 | 74 |

For the first scenario, the VOC emissions associated with the proposed composting operating will require a permit modification for the Site. During this permitting process, SCAQMD rules will require that the Site offset the new VOC emissions with VOC offsets from elsewhere in the SCAQMD. This requirement of the permitting process will result in no net increase in the VOC emissions as the increase in VOC emissions from Chiquita is balanced by a corresponding reduction elsewhere in the District.

The second scenario assumes that the compost operation includes less than ten percent foodwaste and is subject to the BMP requirements that are expected to result in an overall control efficiency of 40 percent for VOCs and 20 percent for ammonia during the active phase. Emissions during the curing phase would not be controlled. The emissions for this scenario are presented in ***Table 2***.

**Table 2 - Chiquita Canyon Compost Operation VOC Emissions - Less than 10% Foodwaste**

| Process Rate | VOC Emission Factor | Uncontrolled VOC Emissions | Controlled VOC Emissions | Ammonia Emission Factor | Uncontrolled Ammonia Emissions | Controlled Ammonia Emissions |
|---|---|---|---|---|---|---|
| (tpd) | (lb/ton processed) | (lb/day) | (lb/day) | (lb/ton processed) | (lb/day) | (lb/day) |
| 560 | 4.67 | 2,615 | 1,663 | 0.66 | 370 | 318 |

For the second scenario, composting could be done in windrows and would not require a permit for the composting process. Because no permit would be required, there would be no requirement to offset VOC emissions from the composting process itself. Other sources at the facility, including some equipment, may require stationary source permitting.

## Equipment Emissions

Some heavy equipment will be required for the composting operation. The equipment is likely to include diesel engines and other combustion sources. Combustion is a source of several criteria pollutants, including VOCs, carbon monoxide (CO), oxides of nitrogen (NOx), particulate matter (PM) (including respirable particulate matter [PM10] and fine particulate matter [PM2.5]), and oxides of sulfur (SOx). This equipment was not included in the existing evaluation for the Chiquita expansion and should be quantified. The composting method and operational details are

not determined at this time, so the composting operation emissions will be quantified based on the equipment use of other recently analyzed composting operations.

The project selected as a comparable project is the Sonoma County Central Disposal Site (CDS), which underwent a CEQA evaluation finalized in 2013 (State clearinghouse number 2008122007). The CDS project was a 70-acre composting facility located in the City of Petaluma. The project had a throughput of 200,000 tons per year (tpy), equivalent to 550 tpd.

Equipment emissions were calculated using emission factors obtained from California Emissions Estimator Model (CalEEMod) documentation and calculated in CalEEMod. Emissions were calculated assuming that three acres were disturbed per day. Composting equipment included seven loaders, one water truck, one forklift, and three other pieces of material handling equipment, consistent with the equipment in the CDS CEQA document. Each piece of equipment was assumed to operate for 2.6 hours per day. WCI will be using equipment with Tier 4f compliant engines, so emissions of PM2.5, PM10, NOx, CO and VOCs were calculated outside of CalEEMod. Emission factors used in those calculations are shown in ***Table 3***. Emissions of those pollutants are show in in ***Table 4***. Other operating emissions, including dust and SOx from equipment are shown in ***Table 5***.

In addition to the use of Tier 4f equipment, the Project proposes to include dust control measures as part of the Project itself. These measures include watering the construction site suspension of earthmoving activities during high wind, and other control measures. These control measures are expected to achieve control effectiveness of 75 percent for dust from earthmoving and 55 percent for vehicle travel on unpaved roads. These measures would be in addition to the dust control measures already implemented at the Site.

**Table 3 - Chiquita Canyon Operating Equipment Emission Factors**

| Equipment | PM Emission Factor (g/bhp-hr) | NOx Emission Factor (g/bhp-hr) | CO Emission Factor (g/bhp-hr) | VOC Emission Factor (g/bhp-hr) |
|---|---|---|---|---|
| Dozer | 0.008 | 0.26 | 2.2 | 0.06 |
| Water Truck | 0.008 | 0.26 | 2.2 | 0.06 |
| Forklift | 0.008 | 0.26 | 3.7 | 0.06 |
| Material Handling Equipment | 0.008 | 0.26 | 2.2 | 0.06 |
| Material Handling Equipment | 0.008 | 0.26 | 2.2 | 0.06 |
| Material Handling Equipment | 0.008 | 0.26 | 3.7 | 0.06 |

**Table 4 - Chiquita Canyon Operating Equipment Engine Emissions**

| Equipment | Count | Horsepower | Load Factor | PM Emissions (lb/day) | NOx Emissions (lb/day) | CO Emissions (lb/day) | VOC Emissions (lb/day) |
|---|---|---|---|---|---|---|---|
| Dozer | 7 | 235 | 0.40 | 0.030 | 0.980 | 8.3 | 0.23 |
| Water Truck | 1 | 275 | 0.38 | 0.005 | 0.16 | 1.32 | 0.036 |
| Forklift | 1 | 93 | 0.20 | 0.001 | 0.03 | 0.39 | 0.006 |
| Material Handling Equipment | 1 | 580 | 0.40 | 0.011 | 0.35 | 2.92 | 0.08 |
| Material Handling Equipment | 1 | 260 | 0.40 | 0.005 | 0.15 | 1.31 | 0.036 |
| Material Handling Equipment | 1 | 139 | 0.40 | 0.003 | 0.08 | 1.18 | 0.019 |
| Total | | | | 0.054 | 1.75 | 15.4 | 0.40 |

**Table 5 –Chiquita Canyon Operating Equipment Emissions**

| Pollutant | VOC | NOx | CO | SOx | PM10 | PM2.5 |
|---|---|---|---|---|---|---|
| Engine Emission Rate (lb/day) | 0.40 | 1.75 | 15.4 | 0.039 | 0.054 | 0.054 |
| On-site Dust Emission Rate (lb/day) | | | | | 4.22 | 1.97 |

## Construction Emissions

Construction of the compost facility would require the use of heavy equipment such as scrapers, dozers, and loaders. Consequently, it will result in equipment emissions of a nature similar to that of the equipment emissions, though they would not be ongoing.

Conservatively, it is assumed that a 41-acre area would be utilized for composting. While it is likely that some of the previous operation would be suitable for the proposed composting operation resulting in less construction, the assumption that a new facility will be required provides a conservative estimate of construction emissions.

Construction emissions were calculated using the California Emissions Estimator Model (CalEEMod). The construction was assumed to occur over 41 acres and to be consistent with general heavy industrial use. ***Table 6*** shows a summary of construction emissions for construction prior to 2020 and ***Table 7*** shows a summary of the emissions for post-2020 construction. ***Attachment A*** includes the complete CalEEMod output. Note that wile construction would occur three times, the emissions from construction were modeled for once for 2019 and once for after 2020. After 2020, off-road construction equipment would utilize Tier 4f engines in diesel equipment. Increasing prevalence of pollution control would result for slightly lower emissions from construction in later years, but that decrease is relatively small.

**Table 6 - Chiquita Canyon Maximum Daily Construction Emissions (2019)**

| Phase | VOC | NOx | CO | SOx | PM10 | PM2.5 | PM10 (dust) | PM2.5 (dust) |
|---|---|---|---|---|---|---|---|---|
| Paving On-Site | 1.43 | 14.94 | 14.37 | 0.022 | 0.81 | 0.74 | 0 | 0 |
| Paving Off-Site | 0.05 | 0.08 | 0.97 | 0.003 | 0.002 | 0.002 | 0.23 | 0.06 |
| Grading On-Site | 4.89 | 54.20 | 40.30 | 0.062 | 2.50 | 2.30 | 2.17 | 0.90 |
| Grading Off-Site | 0.07 | 0.10 | 1.29 | 0.004 | 0.002 | 0.002 | 0.30 | 0.08 |
| Site Prep On-site | 4.02 | 42.50 | 34.80 | 0.039 | 2.15 | 1.98 | 4.52 | 2.48 |
| Site Prep Off Site | 0.06 | 0.09 | 1.16 | 0.003 | 0.002 | 0.002 | 0.27 | 0.07 |
| Maximum single phase | 4.96 | 54.30 | 41.59 | 0.066 | 2.50 | 2.30 | 4.79 | 2.55 |

All emissions in lb/day

**Table 7 - Chiquita Canyon Maximum Daily Construction Emissions (2020)**

| Phase | VOC | NOx | CO | SOx | PM10 | PM2.5 | PM10 (dust) | PM2.5 (dust) |
|---|---|---|---|---|---|---|---|---|
| Paving On-Site | 0.27 | 1.19 | 16.93 | 0.022 | 0.04 | 0.04 | 0 | 0 |
| Paving Off-Site | 0.05 | 0.07 | 0.90 | 0.003 | 0.002 | 0.002 | 0.23 | 0.06 |
| Grading On-Site | 0.76 | 3.28 | 34.78 | 0.062 | 0.10 | 0.10 | 2.11 | 0.89 |
| Grading Off-Site | 0.06 | 0.10 | 1.20 | 0.004 | 0.002 | 0.002 | 0.30 | 0.08 |
| Site Prep On-site | 0.48 | 2.06 | 21.24 | 0.039 | 0.06 | 0.06 | 4.52 | 2.48 |
| Site Prep Off Site | 0.06 | 0.09 | 1.08 | 0.003 | 0.002 | 0.002 | 0.27 | 0.07 |
| Maximum single phase | 0.82 | 3.38 | 35.98 | 0.07 | 0.10 | 0.10 | 4.79 | 2.55 |

All emissions in lb/day

## Greenhouse Gas Discussion

Composting is considered by CARB to result in a net reduction in GHG emissions. CARB developed an overall GHG reduction factor in the *Method for Estimating Greenhouse Gas Emission Reductions from Compost from Commercial Organic Waste* document (CARB 2011). In that document, CARB concluded that composting results in an overall reduction in GHG emissions of 0.42 metric tons of carbon dioxide equivalent (MTCO2e) per ton of feedstock composted. This Compost Emission Reduction Factor (CERF) includes both the reduction in emissions through factors such as decreased water use and the increase in emissions resulting from the transportation of compost feedstock. Emissions included in the development of the CERF are shown in ***Table 8***.

**Table 8 - CERF Components**

| Components | Emissions Reduction (MTCO2e/ton) |
|---|---|
| Increased carbon storage | 0.26 |
| Decreased water use | 0.02 |
| Decreased soil erosion | 0.13 |
| Decreased fertilizer use | 0.13 |
| Decreased herbicide use | 0 |
| Transportation | -0.008 |
| Process equipment emissions | -0.008 |
| Fugitive methane emissions | -0.078 |
| Fugitive nitrous oxide emissions | -0.025 |
| Total | 0.42 |

## SUMMARY

This focused AQIA provides information about the air quality impacts associated with the proposed composting operation at the Site. These impacts represent a conservative approach to the quantification of the emissions and represent an upper bound for emissions. Further refinement of the composting facility design and operations is likely to result in a facility with lower emissions.

We look forward to assisting you with this matter, and look forward to your timely response. Please contact John Henkelman at (916) 361-1297 or jhenkelman@scsengineers.com if you have any questions about this proposal or wish to discuss this matter further.

Sincerely,

John Henkelman
Senior Project Professional
**SCS ENGINEERS**

Patrick S. Sullivan, R.E.P.A., C.P.P.
Senior Vice President
**SCS ENGINEERS**

**Attachment:**
CalEEMod Output

# References

CARB**,** *Method for Estimating Greenhouse Gas Emission Reductions from Compost from Commercial Organic Waste*, November 2011
Environ, *California Emissions Estimator Model User's Guide*, July 2013
ESA**,** *Sonoma County Waste Management Agency Compost Facility Recirculated Draft Environmental Impact Report*, October 2012
SCAQMD, Rule 1133, January 2003
SCAQMD, Rule 1133.1, July 2011
SCAQMD, Rule 1133.2, January 2003
SCAQMD, Rule 1133.3, July 2011

# Attachments

# Chiquita Canyon Compost

**South Coast Air Basin, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| General Heavy Industry | 0.00 | 1000sqft | 41.00 | 0.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Rural | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 31 |
| **Climate Zone** | 8 | | | **Operational Year** | 2020 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 630.89 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - permitted composting area

Construction Phase - Operating emissions modeled as light grading

Off-road Equipment -

Off-road Equipment -

Grading - operating emissions assume 3 acres per day disturbed

Construction Off-road Equipment Mitigation - Enhanced fugitive dust control practices employed, per 11/16/15 email from Brenda Eels of CH2m
Tier 4f engines per 11/16/15 email from Brenda Eels of CH2m

Operational Off-Road Equipment - no comment

| Table Name | Column Name | Default Value | New Value |
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| tblConstDustMitigation | WaterExposedAreaPM25PercentReduction | 61 | 75 |
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| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 4.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 6.00 |
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| tblConstEquipMitigation | Tier | No Change | Tier 4 Final |
| tblConstEquipMitigation | Tier | No Change | Tier 4 Final |
| tblConstEquipMitigation | Tier | No Change | Tier 4 Final |
| tblConstEquipMitigation | Tier | No Change | Tier 4 Final |
| tblConstEquipMitigation | Tier | No Change | Tier 4 Final |
| tblConstEquipMitigation | Tier | No Change | Tier 4 Final |
| tblConstEquipMitigation | Tier | No Change | Tier 4 Final |
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| tblConstructionPhase | NumDays | 55.00 | 23.00 |
| tblConstructionPhase | NumDays | 30.00 | 21.00 |
| tblConstructionPhase | PhaseEndDate | 5/29/2020 | 5/31/2020 |
| tblGrading | AcresOfGrading | 55.00 | 50.00 |
| tblLandUse | LotAcreage | 0.00 | 41.00 |
| tblProjectCharacteristics | OperationalYear | 2014 | 2020 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |

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| tblVehicleEF | HHD | 0.28 | 0.74 |

| | | | |
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| tblVehicleEF | HHD | 49.77 | 67.91 |
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| tblVehicleEF | HHD | 0.09 | 0.15 |
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| | | | |
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| tblVehicleEF | LDA | 5.4230e-003 | 0.01 |
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| | | | |
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| tblVehicleEF | LDT1 | 0.12 | 0.14 |
| tblVehicleEF | LDT1 | 0.07 | 0.15 |
| tblVehicleEF | LDT1 | 0.93 | 1.22 |

| | | | |
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| tblVehicleEF | LDT1 | 0.02 | 0.03 |
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| tblVehicleEF | LDT1 | 2.96 | 4.92 |
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| tblVehicleEF | LDT1 | 4.3880e-003 | 5.2110e-003 |
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| tblVehicleEF | LDT1 | 0.24 | 0.42 |
| tblVehicleEF | LDT1 | 4.3690e-003 | 4.3760e-003 |
| tblVehicleEF | LDT1 | 8.9900e-004 | 9.2900e-004 |
| tblVehicleEF | LDT1 | 0.25 | 0.32 |
| tblVehicleEF | LDT1 | 0.30 | 0.37 |
| tblVehicleEF | LDT1 | 0.18 | 0.22 |
| tblVehicleEF | LDT1 | 0.07 | 0.15 |
| tblVehicleEF | LDT1 | 0.87 | 1.15 |
| tblVehicleEF | LDT1 | 0.25 | 0.45 |

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|---|---|---|---|
| tblVehicleEF | LDT1 | 0.02 | 0.03 |
| tblVehicleEF | LDT1 | 0.02 | 0.03 |
| tblVehicleEF | LDT1 | 1.98 | 3.42 |
| tblVehicleEF | LDT1 | 3.88 | 6.38 |
| tblVehicleEF | LDT1 | 299.01 | 369.33 |
| tblVehicleEF | LDT1 | 63.81 | 77.89 |
| tblVehicleEF | LDT1 | 0.06 | 0.06 |
| tblVehicleEF | LDT1 | 0.20 | 0.33 |
| tblVehicleEF | LDT1 | 0.22 | 0.36 |
| tblVehicleEF | LDT1 | 3.6910e-003 | 5.2940e-003 |
| tblVehicleEF | LDT1 | 4.7310e-003 | 5.6940e-003 |
| tblVehicleEF | LDT1 | 3.4220e-003 | 4.8430e-003 |
| tblVehicleEF | LDT1 | 4.3880e-003 | 5.2110e-003 |
| tblVehicleEF | LDT1 | 0.16 | 0.21 |
| tblVehicleEF | LDT1 | 0.31 | 0.40 |
| tblVehicleEF | LDT1 | 0.12 | 0.14 |
| tblVehicleEF | LDT1 | 0.05 | 0.11 |
| tblVehicleEF | LDT1 | 1.10 | 1.45 |
| tblVehicleEF | LDT1 | 0.28 | 0.50 |
| tblVehicleEF | LDT1 | 4.0920e-003 | 4.1060e-003 |
| tblVehicleEF | LDT1 | 9.1500e-004 | 9.5500e-004 |
| tblVehicleEF | LDT1 | 0.16 | 0.21 |
| tblVehicleEF | LDT1 | 0.31 | 0.40 |
| tblVehicleEF | LDT1 | 0.12 | 0.14 |
| tblVehicleEF | LDT1 | 0.07 | 0.15 |
| tblVehicleEF | LDT1 | 1.10 | 1.45 |
| tblVehicleEF | LDT1 | 0.30 | 0.53 |
| tblVehicleEF | LDT2 | 0.01 | 0.02 |

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|---|---|---|---|
| tblVehicleEF | LDT2 | 7.9630e-003 | 0.02 |
| tblVehicleEF | LDT2 | 1.07 | 1.93 |
| tblVehicleEF | LDT2 | 2.03 | 3.79 |
| tblVehicleEF | LDT2 | 369.06 | 451.37 |
| tblVehicleEF | LDT2 | 77.44 | 93.47 |
| tblVehicleEF | LDT2 | 0.18 | 0.18 |
| tblVehicleEF | LDT2 | 0.12 | 0.23 |
| tblVehicleEF | LDT2 | 0.18 | 0.37 |
| tblVehicleEF | LDT2 | 1.9220e-003 | 2.2420e-003 |
| tblVehicleEF | LDT2 | 3.3600e-003 | 2.8450e-003 |
| tblVehicleEF | LDT2 | 1.7830e-003 | 2.0520e-003 |
| tblVehicleEF | LDT2 | 3.1160e-003 | 2.6090e-003 |
| tblVehicleEF | LDT2 | 0.06 | 0.08 |
| tblVehicleEF | LDT2 | 0.13 | 0.17 |
| tblVehicleEF | LDT2 | 0.06 | 0.07 |
| tblVehicleEF | LDT2 | 0.02 | 0.05 |
| tblVehicleEF | LDT2 | 0.41 | 0.57 |
| tblVehicleEF | LDT2 | 0.14 | 0.29 |
| tblVehicleEF | LDT2 | 4.8850e-003 | 4.9110e-003 |
| tblVehicleEF | LDT2 | 1.0390e-003 | 1.0660e-003 |
| tblVehicleEF | LDT2 | 0.06 | 0.08 |
| tblVehicleEF | LDT2 | 0.13 | 0.17 |
| tblVehicleEF | LDT2 | 0.06 | 0.07 |
| tblVehicleEF | LDT2 | 0.04 | 0.07 |
| tblVehicleEF | LDT2 | 0.41 | 0.57 |
| tblVehicleEF | LDT2 | 0.15 | 0.31 |
| tblVehicleEF | LDT2 | 0.01 | 0.02 |
| tblVehicleEF | LDT2 | 7.9630e-003 | 0.02 |

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|---|---|---|---|
| tblVehicleEF | LDT2 | 1.19 | 2.11 |
| tblVehicleEF | LDT2 | 1.59 | 2.99 |
| tblVehicleEF | LDT2 | 387.88 | 473.96 |
| tblVehicleEF | LDT2 | 77.44 | 93.47 |
| tblVehicleEF | LDT2 | 0.18 | 0.18 |
| tblVehicleEF | LDT2 | 0.10 | 0.20 |
| tblVehicleEF | LDT2 | 0.16 | 0.34 |
| tblVehicleEF | LDT2 | 1.9220e-003 | 2.2420e-003 |
| tblVehicleEF | LDT2 | 3.3600e-003 | 2.8450e-003 |
| tblVehicleEF | LDT2 | 1.7830e-003 | 2.0520e-003 |
| tblVehicleEF | LDT2 | 3.1160e-003 | 2.6090e-003 |
| tblVehicleEF | LDT2 | 0.10 | 0.13 |
| tblVehicleEF | LDT2 | 0.14 | 0.19 |
| tblVehicleEF | LDT2 | 0.09 | 0.11 |
| tblVehicleEF | LDT2 | 0.02 | 0.05 |
| tblVehicleEF | LDT2 | 0.39 | 0.53 |
| tblVehicleEF | LDT2 | 0.12 | 0.25 |
| tblVehicleEF | LDT2 | 5.1360e-003 | 5.1590e-003 |
| tblVehicleEF | LDT2 | 1.0320e-003 | 1.0520e-003 |
| tblVehicleEF | LDT2 | 0.10 | 0.13 |
| tblVehicleEF | LDT2 | 0.14 | 0.19 |
| tblVehicleEF | LDT2 | 0.09 | 0.11 |
| tblVehicleEF | LDT2 | 0.04 | 0.08 |
| tblVehicleEF | LDT2 | 0.39 | 0.53 |
| tblVehicleEF | LDT2 | 0.13 | 0.26 |
| tblVehicleEF | LDT2 | 0.01 | 0.02 |
| tblVehicleEF | LDT2 | 7.9630e-003 | 0.02 |
| tblVehicleEF | LDT2 | 1.03 | 1.87 |

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|---|---|---|---|
| tblVehicleEF | LDT2 | 2.10 | 3.92 |
| tblVehicleEF | LDT2 | 363.32 | 444.39 |
| tblVehicleEF | LDT2 | 77.44 | 93.47 |
| tblVehicleEF | LDT2 | 0.18 | 0.18 |
| tblVehicleEF | LDT2 | 0.11 | 0.22 |
| tblVehicleEF | LDT2 | 0.18 | 0.37 |
| tblVehicleEF | LDT2 | 1.9220e-003 | 2.2420e-003 |
| tblVehicleEF | LDT2 | 3.3600e-003 | 2.8450e-003 |
| tblVehicleEF | LDT2 | 1.7830e-003 | 2.0520e-003 |
| tblVehicleEF | LDT2 | 3.1160e-003 | 2.6090e-003 |
| tblVehicleEF | LDT2 | 0.06 | 0.08 |
| tblVehicleEF | LDT2 | 0.15 | 0.20 |
| tblVehicleEF | LDT2 | 0.06 | 0.07 |
| tblVehicleEF | LDT2 | 0.02 | 0.05 |
| tblVehicleEF | LDT2 | 0.48 | 0.67 |
| tblVehicleEF | LDT2 | 0.14 | 0.30 |
| tblVehicleEF | LDT2 | 4.8080e-003 | 4.8340e-003 |
| tblVehicleEF | LDT2 | 1.0410e-003 | 1.0680e-003 |
| tblVehicleEF | LDT2 | 0.06 | 0.08 |
| tblVehicleEF | LDT2 | 0.15 | 0.20 |
| tblVehicleEF | LDT2 | 0.06 | 0.07 |
| tblVehicleEF | LDT2 | 0.03 | 0.07 |
| tblVehicleEF | LDT2 | 0.48 | 0.67 |
| tblVehicleEF | LDT2 | 0.15 | 0.32 |
| tblVehicleEF | LHD1 | 1.2790e-003 | 1.3160e-003 |
| tblVehicleEF | LHD1 | 0.01 | 0.02 |
| tblVehicleEF | LHD1 | 0.02 | 0.03 |
| tblVehicleEF | LHD1 | 0.19 | 0.19 |

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|---|---|---|---|
| tblVehicleEF | LHD1 | 0.99 | 1.79 |
| tblVehicleEF | LHD1 | 4.05 | 5.57 |
| tblVehicleEF | LHD1 | 7.69 | 8.41 |
| tblVehicleEF | LHD1 | 527.90 | 580.48 |
| tblVehicleEF | LHD1 | 41.65 | 45.00 |
| tblVehicleEF | LHD1 | 0.04 | 0.04 |
| tblVehicleEF | LHD1 | 0.05 | 0.05 |
| tblVehicleEF | LHD1 | 0.97 | 1.51 |
| tblVehicleEF | LHD1 | 1.31 | 1.49 |
| tblVehicleEF | LHD1 | 4.7400e-004 | 4.8600e-004 |
| tblVehicleEF | LHD1 | 0.05 | 0.05 |
| tblVehicleEF | LHD1 | 8.9470e-003 | 8.9400e-003 |
| tblVehicleEF | LHD1 | 6.6120e-003 | 9.0460e-003 |
| tblVehicleEF | LHD1 | 9.0900e-004 | 1.5360e-003 |
| tblVehicleEF | LHD1 | 4.3600e-004 | 4.4700e-004 |
| tblVehicleEF | LHD1 | 0.02 | 0.02 |
| tblVehicleEF | LHD1 | 2.2370e-003 | 2.2350e-003 |
| tblVehicleEF | LHD1 | 6.0870e-003 | 8.3250e-003 |
| tblVehicleEF | LHD1 | 8.4100e-004 | 1.4050e-003 |
| tblVehicleEF | LHD1 | 2.6010e-003 | 3.1280e-003 |
| tblVehicleEF | LHD1 | 0.07 | 0.08 |
| tblVehicleEF | LHD1 | 0.03 | 0.03 |
| tblVehicleEF | LHD1 | 1.6220e-003 | 1.7380e-003 |
| tblVehicleEF | LHD1 | 0.07 | 0.13 |
| tblVehicleEF | LHD1 | 0.41 | 0.45 |
| tblVehicleEF | LHD1 | 0.37 | 0.51 |
| tblVehicleEF | LHD1 | 5.8160e-003 | 5.8570e-003 |
| tblVehicleEF | LHD1 | 5.3700e-004 | 5.6000e-004 |

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|---|---|---|---|
| tblVehicleEF | LHD1 | 2.6010e-003 | 3.1280e-003 |
| tblVehicleEF | LHD1 | 0.07 | 0.08 |
| tblVehicleEF | LHD1 | 0.03 | 0.03 |
| tblVehicleEF | LHD1 | 1.6220e-003 | 1.7380e-003 |
| tblVehicleEF | LHD1 | 0.09 | 0.15 |
| tblVehicleEF | LHD1 | 0.41 | 0.45 |
| tblVehicleEF | LHD1 | 0.39 | 0.54 |
| tblVehicleEF | LHD1 | 1.2790e-003 | 1.3160e-003 |
| tblVehicleEF | LHD1 | 0.01 | 0.02 |
| tblVehicleEF | LHD1 | 0.02 | 0.03 |
| tblVehicleEF | LHD1 | 0.19 | 0.19 |
| tblVehicleEF | LHD1 | 1.00 | 1.81 |
| tblVehicleEF | LHD1 | 3.28 | 4.51 |
| tblVehicleEF | LHD1 | 7.69 | 8.41 |
| tblVehicleEF | LHD1 | 527.90 | 580.48 |
| tblVehicleEF | LHD1 | 41.65 | 45.00 |
| tblVehicleEF | LHD1 | 0.04 | 0.04 |
| tblVehicleEF | LHD1 | 0.05 | 0.05 |
| tblVehicleEF | LHD1 | 0.90 | 1.40 |
| tblVehicleEF | LHD1 | 1.26 | 1.43 |
| tblVehicleEF | LHD1 | 4.7400e-004 | 4.8600e-004 |
| tblVehicleEF | LHD1 | 0.05 | 0.05 |
| tblVehicleEF | LHD1 | 8.9470e-003 | 8.9400e-003 |
| tblVehicleEF | LHD1 | 6.6120e-003 | 9.0460e-003 |
| tblVehicleEF | LHD1 | 9.0900e-004 | 1.5360e-003 |
| tblVehicleEF | LHD1 | 4.3600e-004 | 4.4700e-004 |
| tblVehicleEF | LHD1 | 0.02 | 0.02 |
| tblVehicleEF | LHD1 | 2.2370e-003 | 2.2350e-003 |

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|---|---|---|---|
| tblVehicleEF | LHD1 | 6.0870e-003 | 8.3250e-003 |
| tblVehicleEF | LHD1 | 8.4100e-004 | 1.4050e-003 |
| tblVehicleEF | LHD1 | 4.0630e-003 | 4.9240e-003 |
| tblVehicleEF | LHD1 | 0.08 | 0.08 |
| tblVehicleEF | LHD1 | 0.03 | 0.03 |
| tblVehicleEF | LHD1 | 2.5050e-003 | 2.8030e-003 |
| tblVehicleEF | LHD1 | 0.07 | 0.13 |
| tblVehicleEF | LHD1 | 0.40 | 0.44 |
| tblVehicleEF | LHD1 | 0.32 | 0.45 |
| tblVehicleEF | LHD1 | 5.8160e-003 | 5.8580e-003 |
| tblVehicleEF | LHD1 | 5.2400e-004 | 5.4100e-004 |
| tblVehicleEF | LHD1 | 4.0630e-003 | 4.9240e-003 |
| tblVehicleEF | LHD1 | 0.08 | 0.08 |
| tblVehicleEF | LHD1 | 0.03 | 0.03 |
| tblVehicleEF | LHD1 | 2.5050e-003 | 2.8030e-003 |
| tblVehicleEF | LHD1 | 0.09 | 0.15 |
| tblVehicleEF | LHD1 | 0.40 | 0.44 |
| tblVehicleEF | LHD1 | 0.35 | 0.48 |
| tblVehicleEF | LHD1 | 1.2790e-003 | 1.3160e-003 |
| tblVehicleEF | LHD1 | 0.01 | 0.02 |
| tblVehicleEF | LHD1 | 0.02 | 0.03 |
| tblVehicleEF | LHD1 | 0.19 | 0.19 |
| tblVehicleEF | LHD1 | 0.98 | 1.78 |
| tblVehicleEF | LHD1 | 4.09 | 5.63 |
| tblVehicleEF | LHD1 | 7.69 | 8.41 |
| tblVehicleEF | LHD1 | 527.90 | 580.48 |
| tblVehicleEF | LHD1 | 41.65 | 45.00 |
| tblVehicleEF | LHD1 | 0.04 | 0.04 |

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|---|---|---|---|
| tblVehicleEF | LHD1 | 0.05 | 0.05 |
| tblVehicleEF | LHD1 | 0.95 | 1.48 |
| tblVehicleEF | LHD1 | 1.31 | 1.49 |
| tblVehicleEF | LHD1 | 4.7400e-004 | 4.8600e-004 |
| tblVehicleEF | LHD1 | 0.05 | 0.05 |
| tblVehicleEF | LHD1 | 8.9470e-003 | 8.9400e-003 |
| tblVehicleEF | LHD1 | 6.6120e-003 | 9.0460e-003 |
| tblVehicleEF | LHD1 | 9.0900e-004 | 1.5360e-003 |
| tblVehicleEF | LHD1 | 4.3600e-004 | 4.4700e-004 |
| tblVehicleEF | LHD1 | 0.02 | 0.02 |
| tblVehicleEF | LHD1 | 2.2370e-003 | 2.2350e-003 |
| tblVehicleEF | LHD1 | 6.0870e-003 | 8.3250e-003 |
| tblVehicleEF | LHD1 | 8.4100e-004 | 1.4050e-003 |
| tblVehicleEF | LHD1 | 2.7470e-003 | 3.4760e-003 |
| tblVehicleEF | LHD1 | 0.08 | 0.09 |
| tblVehicleEF | LHD1 | 0.03 | 0.03 |
| tblVehicleEF | LHD1 | 1.6340e-003 | 1.7930e-003 |
| tblVehicleEF | LHD1 | 0.07 | 0.13 |
| tblVehicleEF | LHD1 | 0.45 | 0.49 |
| tblVehicleEF | LHD1 | 0.37 | 0.51 |
| tblVehicleEF | LHD1 | 5.8160e-003 | 5.8570e-003 |
| tblVehicleEF | LHD1 | 5.3800e-004 | 5.6100e-004 |
| tblVehicleEF | LHD1 | 2.7470e-003 | 3.4760e-003 |
| tblVehicleEF | LHD1 | 0.08 | 0.09 |
| tblVehicleEF | LHD1 | 0.03 | 0.03 |
| tblVehicleEF | LHD1 | 1.6340e-003 | 1.7930e-003 |
| tblVehicleEF | LHD1 | 0.09 | 0.15 |
| tblVehicleEF | LHD1 | 0.45 | 0.49 |

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|---|---|---|---|
| tblVehicleEF | LHD1 | 0.39 | 0.55 |
| tblVehicleEF | LHD2 | 1.0040e-003 | 1.0310e-003 |
| tblVehicleEF | LHD2 | 7.6960e-003 | 0.01 |
| tblVehicleEF | LHD2 | 0.01 | 0.02 |
| tblVehicleEF | LHD2 | 0.15 | 0.15 |
| tblVehicleEF | LHD2 | 0.65 | 1.35 |
| tblVehicleEF | LHD2 | 2.35 | 3.71 |
| tblVehicleEF | LHD2 | 8.47 | 9.26 |
| tblVehicleEF | LHD2 | 509.73 | 560.08 |
| tblVehicleEF | LHD2 | 28.53 | 31.29 |
| tblVehicleEF | LHD2 | 6.6920e-003 | 6.6160e-003 |
| tblVehicleEF | LHD2 | 0.10 | 0.10 |
| tblVehicleEF | LHD2 | 1.53 | 2.41 |
| tblVehicleEF | LHD2 | 0.86 | 1.01 |
| tblVehicleEF | LHD2 | 1.0380e-003 | 1.0680e-003 |
| tblVehicleEF | LHD2 | 0.06 | 0.06 |
| tblVehicleEF | LHD2 | 9.9660e-003 | 9.9780e-003 |
| tblVehicleEF | LHD2 | 0.01 | 0.02 |
| tblVehicleEF | LHD2 | 4.7500e-004 | 1.0880e-003 |
| tblVehicleEF | LHD2 | 9.5500e-004 | 9.8300e-004 |
| tblVehicleEF | LHD2 | 0.03 | 0.03 |
| tblVehicleEF | LHD2 | 2.4910e-003 | 2.4940e-003 |
| tblVehicleEF | LHD2 | 0.01 | 0.02 |
| tblVehicleEF | LHD2 | 4.4000e-004 | 9.7200e-004 |
| tblVehicleEF | LHD2 | 1.4640e-003 | 2.0850e-003 |
| tblVehicleEF | LHD2 | 0.04 | 0.05 |
| tblVehicleEF | LHD2 | 0.02 | 0.02 |
| tblVehicleEF | LHD2 | 9.5400e-004 | 1.1570e-003 |

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|---|---|---|---|
| tblVehicleEF | LHD2 | 0.07 | 0.12 |
| tblVehicleEF | LHD2 | 0.24 | 0.31 |
| tblVehicleEF | LHD2 | 0.22 | 0.34 |
| tblVehicleEF | LHD2 | 5.5480e-003 | 5.5800e-003 |
| tblVehicleEF | LHD2 | 3.6000e-004 | 3.8600e-004 |
| tblVehicleEF | LHD2 | 1.4640e-003 | 2.0850e-003 |
| tblVehicleEF | LHD2 | 0.04 | 0.05 |
| tblVehicleEF | LHD2 | 0.02 | 0.03 |
| tblVehicleEF | LHD2 | 9.5400e-004 | 1.1570e-003 |
| tblVehicleEF | LHD2 | 0.08 | 0.14 |
| tblVehicleEF | LHD2 | 0.24 | 0.31 |
| tblVehicleEF | LHD2 | 0.23 | 0.36 |
| tblVehicleEF | LHD2 | 1.0040e-003 | 1.0310e-003 |
| tblVehicleEF | LHD2 | 7.6960e-003 | 0.01 |
| tblVehicleEF | LHD2 | 0.01 | 0.02 |
| tblVehicleEF | LHD2 | 0.15 | 0.15 |
| tblVehicleEF | LHD2 | 0.66 | 1.36 |
| tblVehicleEF | LHD2 | 1.91 | 3.04 |
| tblVehicleEF | LHD2 | 8.47 | 9.26 |
| tblVehicleEF | LHD2 | 509.73 | 560.08 |
| tblVehicleEF | LHD2 | 28.53 | 31.29 |
| tblVehicleEF | LHD2 | 6.6920e-003 | 6.6160e-003 |
| tblVehicleEF | LHD2 | 0.10 | 0.10 |
| tblVehicleEF | LHD2 | 1.44 | 2.27 |
| tblVehicleEF | LHD2 | 0.83 | 0.97 |
| tblVehicleEF | LHD2 | 1.0380e-003 | 1.0680e-003 |
| tblVehicleEF | LHD2 | 0.06 | 0.06 |
| tblVehicleEF | LHD2 | 9.9660e-003 | 9.9780e-003 |

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|---|---|---|---|
| tblVehicleEF | LHD2 | 0.01 | 0.02 |
| tblVehicleEF | LHD2 | 4.7500e-004 | 1.0880e-003 |
| tblVehicleEF | LHD2 | 9.5500e-004 | 9.8300e-004 |
| tblVehicleEF | LHD2 | 0.03 | 0.03 |
| tblVehicleEF | LHD2 | 2.4910e-003 | 2.4940e-003 |
| tblVehicleEF | LHD2 | 0.01 | 0.02 |
| tblVehicleEF | LHD2 | 4.4000e-004 | 9.7200e-004 |
| tblVehicleEF | LHD2 | 2.2620e-003 | 3.2560e-003 |
| tblVehicleEF | LHD2 | 0.05 | 0.06 |
| tblVehicleEF | LHD2 | 0.02 | 0.02 |
| tblVehicleEF | LHD2 | 1.4470e-003 | 1.8480e-003 |
| tblVehicleEF | LHD2 | 0.07 | 0.12 |
| tblVehicleEF | LHD2 | 0.23 | 0.30 |
| tblVehicleEF | LHD2 | 0.19 | 0.30 |
| tblVehicleEF | LHD2 | 5.5480e-003 | 5.5800e-003 |
| tblVehicleEF | LHD2 | 3.5300e-004 | 3.7400e-004 |
| tblVehicleEF | LHD2 | 2.2620e-003 | 3.2560e-003 |
| tblVehicleEF | LHD2 | 0.05 | 0.06 |
| tblVehicleEF | LHD2 | 0.02 | 0.03 |
| tblVehicleEF | LHD2 | 1.4470e-003 | 1.8480e-003 |
| tblVehicleEF | LHD2 | 0.08 | 0.14 |
| tblVehicleEF | LHD2 | 0.23 | 0.30 |
| tblVehicleEF | LHD2 | 0.21 | 0.32 |
| tblVehicleEF | LHD2 | 1.0040e-003 | 1.0310e-003 |
| tblVehicleEF | LHD2 | 7.6960e-003 | 0.01 |
| tblVehicleEF | LHD2 | 0.01 | 0.02 |
| tblVehicleEF | LHD2 | 0.15 | 0.15 |
| tblVehicleEF | LHD2 | 0.65 | 1.35 |

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|---|---|---|---|
| tblVehicleEF | LHD2 | 2.38 | 3.76 |
| tblVehicleEF | LHD2 | 8.47 | 9.26 |
| tblVehicleEF | LHD2 | 509.73 | 560.08 |
| tblVehicleEF | LHD2 | 28.53 | 31.29 |
| tblVehicleEF | LHD2 | 6.6920e-003 | 6.6160e-003 |
| tblVehicleEF | LHD2 | 0.10 | 0.10 |
| tblVehicleEF | LHD2 | 1.51 | 2.37 |
| tblVehicleEF | LHD2 | 0.87 | 1.01 |
| tblVehicleEF | LHD2 | 1.0380e-003 | 1.0680e-003 |
| tblVehicleEF | LHD2 | 0.06 | 0.06 |
| tblVehicleEF | LHD2 | 9.9660e-003 | 9.9780e-003 |
| tblVehicleEF | LHD2 | 0.01 | 0.02 |
| tblVehicleEF | LHD2 | 4.7500e-004 | 1.0880e-003 |
| tblVehicleEF | LHD2 | 9.5500e-004 | 9.8300e-004 |
| tblVehicleEF | LHD2 | 0.03 | 0.03 |
| tblVehicleEF | LHD2 | 2.4910e-003 | 2.4940e-003 |
| tblVehicleEF | LHD2 | 0.01 | 0.02 |
| tblVehicleEF | LHD2 | 4.4000e-004 | 9.7200e-004 |
| tblVehicleEF | LHD2 | 1.5100e-003 | 2.3100e-003 |
| tblVehicleEF | LHD2 | 0.05 | 0.07 |
| tblVehicleEF | LHD2 | 0.02 | 0.02 |
| tblVehicleEF | LHD2 | 9.4600e-004 | 1.1820e-003 |
| tblVehicleEF | LHD2 | 0.07 | 0.12 |
| tblVehicleEF | LHD2 | 0.26 | 0.34 |
| tblVehicleEF | LHD2 | 0.22 | 0.35 |
| tblVehicleEF | LHD2 | 5.5480e-003 | 5.5800e-003 |
| tblVehicleEF | LHD2 | 3.6100e-004 | 3.8700e-004 |
| tblVehicleEF | LHD2 | 1.5100e-003 | 2.3100e-003 |

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|---|---|---|---|
| tblVehicleEF | LHD2 | 0.05 | 0.07 |
| tblVehicleEF | LHD2 | 0.02 | 0.03 |
| tblVehicleEF | LHD2 | 9.4600e-004 | 1.1820e-003 |
| tblVehicleEF | LHD2 | 0.08 | 0.14 |
| tblVehicleEF | LHD2 | 0.26 | 0.34 |
| tblVehicleEF | LHD2 | 0.24 | 0.37 |
| tblVehicleEF | MCY | 20.47 | 24.45 |
| tblVehicleEF | MCY | 10.01 | 9.72 |
| tblVehicleEF | MCY | 141.21 | 145.96 |
| tblVehicleEF | MCY | 38.50 | 46.27 |
| tblVehicleEF | MCY | 4.3920e-003 | 4.3140e-003 |
| tblVehicleEF | MCY | 1.16 | 1.20 |
| tblVehicleEF | MCY | 0.31 | 0.31 |
| tblVehicleEF | MCY | 0.04 | 0.04 |
| tblVehicleEF | MCY | 3.1300e-004 | 6.8500e-004 |
| tblVehicleEF | MCY | 9.6300e-004 | 2.1930e-003 |
| tblVehicleEF | MCY | 0.02 | 0.02 |
| tblVehicleEF | MCY | 2.6300e-004 | 5.4900e-004 |
| tblVehicleEF | MCY | 8.0000e-004 | 1.7220e-003 |
| tblVehicleEF | MCY | 0.97 | 1.01 |
| tblVehicleEF | MCY | 0.41 | 0.49 |
| tblVehicleEF | MCY | 0.55 | 0.58 |
| tblVehicleEF | MCY | 2.38 | 2.55 |
| tblVehicleEF | MCY | 1.24 | 1.79 |
| tblVehicleEF | MCY | 2.06 | 2.17 |
| tblVehicleEF | MCY | 1.9650e-003 | 1.9460e-003 |
| tblVehicleEF | MCY | 6.5000e-004 | 6.9100e-004 |
| tblVehicleEF | MCY | 0.97 | 1.01 |

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|---|---|---|---|
| tblVehicleEF | MCY | 0.41 | 0.49 |
| tblVehicleEF | MCY | 0.55 | 0.58 |
| tblVehicleEF | MCY | 2.61 | 2.80 |
| tblVehicleEF | MCY | 1.24 | 1.79 |
| tblVehicleEF | MCY | 2.21 | 2.33 |
| tblVehicleEF | MCY | 19.82 | 23.53 |
| tblVehicleEF | MCY | 8.80 | 8.72 |
| tblVehicleEF | MCY | 141.21 | 145.96 |
| tblVehicleEF | MCY | 38.50 | 46.27 |
| tblVehicleEF | MCY | 4.3920e-003 | 4.3140e-003 |
| tblVehicleEF | MCY | 1.01 | 1.05 |
| tblVehicleEF | MCY | 0.29 | 0.29 |
| tblVehicleEF | MCY | 0.04 | 0.04 |
| tblVehicleEF | MCY | 3.1300e-004 | 6.8500e-004 |
| tblVehicleEF | MCY | 9.6300e-004 | 2.1930e-003 |
| tblVehicleEF | MCY | 0.02 | 0.02 |
| tblVehicleEF | MCY | 2.6300e-004 | 5.4900e-004 |
| tblVehicleEF | MCY | 8.0000e-004 | 1.7220e-003 |
| tblVehicleEF | MCY | 1.65 | 1.71 |
| tblVehicleEF | MCY | 0.51 | 0.58 |
| tblVehicleEF | MCY | 1.05 | 1.09 |
| tblVehicleEF | MCY | 2.32 | 2.47 |
| tblVehicleEF | MCY | 1.16 | 1.69 |
| tblVehicleEF | MCY | 1.81 | 1.89 |
| tblVehicleEF | MCY | 1.9530e-003 | 1.9290e-003 |
| tblVehicleEF | MCY | 6.2300e-004 | 6.6600e-004 |
| tblVehicleEF | MCY | 1.65 | 1.71 |
| tblVehicleEF | MCY | 0.51 | 0.58 |

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|---|---|---|---|
| tblVehicleEF | MCY | 1.05 | 1.09 |
| tblVehicleEF | MCY | 2.55 | 2.71 |
| tblVehicleEF | MCY | 1.16 | 1.69 |
| tblVehicleEF | MCY | 1.95 | 2.03 |
| tblVehicleEF | MCY | 20.37 | 24.35 |
| tblVehicleEF | MCY | 10.06 | 9.77 |
| tblVehicleEF | MCY | 141.21 | 145.96 |
| tblVehicleEF | MCY | 38.50 | 46.27 |
| tblVehicleEF | MCY | 4.3920e-003 | 4.3140e-003 |
| tblVehicleEF | MCY | 1.13 | 1.17 |
| tblVehicleEF | MCY | 0.31 | 0.31 |
| tblVehicleEF | MCY | 0.04 | 0.04 |
| tblVehicleEF | MCY | 3.1300e-004 | 6.8500e-004 |
| tblVehicleEF | MCY | 9.6300e-004 | 2.1930e-003 |
| tblVehicleEF | MCY | 0.02 | 0.02 |
| tblVehicleEF | MCY | 2.6300e-004 | 5.4900e-004 |
| tblVehicleEF | MCY | 8.0000e-004 | 1.7220e-003 |
| tblVehicleEF | MCY | 1.09 | 1.14 |
| tblVehicleEF | MCY | 0.54 | 0.65 |
| tblVehicleEF | MCY | 0.54 | 0.58 |
| tblVehicleEF | MCY | 2.38 | 2.56 |
| tblVehicleEF | MCY | 1.48 | 2.07 |
| tblVehicleEF | MCY | 2.08 | 2.19 |
| tblVehicleEF | MCY | 1.9640e-003 | 1.9450e-003 |
| tblVehicleEF | MCY | 6.5100e-004 | 6.9200e-004 |
| tblVehicleEF | MCY | 1.09 | 1.14 |
| tblVehicleEF | MCY | 0.54 | 0.65 |
| tblVehicleEF | MCY | 0.54 | 0.58 |

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|---|---|---|---|
| tblVehicleEF | MCY | 2.61 | 2.80 |
| tblVehicleEF | MCY | 1.48 | 2.07 |
| tblVehicleEF | MCY | 2.23 | 2.35 |
| tblVehicleEF | MDV | 0.02 | 0.03 |
| tblVehicleEF | MDV | 0.02 | 0.03 |
| tblVehicleEF | MDV | 1.77 | 2.63 |
| tblVehicleEF | MDV | 3.76 | 5.50 |
| tblVehicleEF | MDV | 488.74 | 582.41 |
| tblVehicleEF | MDV | 102.89 | 120.26 |
| tblVehicleEF | MDV | 0.14 | 0.14 |
| tblVehicleEF | MDV | 0.22 | 0.34 |
| tblVehicleEF | MDV | 0.35 | 0.54 |
| tblVehicleEF | MDV | 2.1710e-003 | 2.4330e-003 |
| tblVehicleEF | MDV | 3.5260e-003 | 3.3330e-003 |
| tblVehicleEF | MDV | 2.0090e-003 | 2.2350e-003 |
| tblVehicleEF | MDV | 3.2650e-003 | 3.0670e-003 |
| tblVehicleEF | MDV | 0.09 | 0.09 |
| tblVehicleEF | MDV | 0.20 | 0.19 |
| tblVehicleEF | MDV | 0.09 | 0.08 |
| tblVehicleEF | MDV | 0.05 | 0.08 |
| tblVehicleEF | MDV | 0.60 | 0.60 |
| tblVehicleEF | MDV | 0.32 | 0.48 |
| tblVehicleEF | MDV | 6.2060e-003 | 6.2070e-003 |
| tblVehicleEF | MDV | 1.3410e-003 | 1.3600e-003 |
| tblVehicleEF | MDV | 0.09 | 0.09 |
| tblVehicleEF | MDV | 0.20 | 0.19 |
| tblVehicleEF | MDV | 0.09 | 0.08 |
| tblVehicleEF | MDV | 0.07 | 0.11 |

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|---|---|---|---|
| tblVehicleEF | MDV | 0.60 | 0.60 |
| tblVehicleEF | MDV | 0.34 | 0.51 |
| tblVehicleEF | MDV | 0.02 | 0.03 |
| tblVehicleEF | MDV | 0.02 | 0.03 |
| tblVehicleEF | MDV | 1.96 | 2.88 |
| tblVehicleEF | MDV | 2.96 | 4.34 |
| tblVehicleEF | MDV | 514.22 | 612.09 |
| tblVehicleEF | MDV | 102.89 | 120.26 |
| tblVehicleEF | MDV | 0.14 | 0.14 |
| tblVehicleEF | MDV | 0.19 | 0.30 |
| tblVehicleEF | MDV | 0.33 | 0.50 |
| tblVehicleEF | MDV | 2.1710e-003 | 2.4330e-003 |
| tblVehicleEF | MDV | 3.5260e-003 | 3.3330e-003 |
| tblVehicleEF | MDV | 2.0090e-003 | 2.2350e-003 |
| tblVehicleEF | MDV | 3.2650e-003 | 3.0670e-003 |
| tblVehicleEF | MDV | 0.15 | 0.14 |
| tblVehicleEF | MDV | 0.21 | 0.20 |
| tblVehicleEF | MDV | 0.13 | 0.12 |
| tblVehicleEF | MDV | 0.05 | 0.08 |
| tblVehicleEF | MDV | 0.57 | 0.57 |
| tblVehicleEF | MDV | 0.27 | 0.41 |
| tblVehicleEF | MDV | 6.5340e-003 | 6.5270e-003 |
| tblVehicleEF | MDV | 1.3270e-003 | 1.3400e-003 |
| tblVehicleEF | MDV | 0.15 | 0.14 |
| tblVehicleEF | MDV | 0.21 | 0.20 |
| tblVehicleEF | MDV | 0.13 | 0.12 |
| tblVehicleEF | MDV | 0.07 | 0.12 |
| tblVehicleEF | MDV | 0.57 | 0.57 |

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|---|---|---|---|
| tblVehicleEF | MDV | 0.29 | 0.44 |
| tblVehicleEF | MDV | 0.02 | 0.03 |
| tblVehicleEF | MDV | 0.02 | 0.03 |
| tblVehicleEF | MDV | 1.72 | 2.55 |
| tblVehicleEF | MDV | 3.88 | 5.67 |
| tblVehicleEF | MDV | 481.25 | 573.56 |
| tblVehicleEF | MDV | 102.89 | 120.26 |
| tblVehicleEF | MDV | 0.14 | 0.14 |
| tblVehicleEF | MDV | 0.21 | 0.33 |
| tblVehicleEF | MDV | 0.35 | 0.54 |
| tblVehicleEF | MDV | 2.1710e-003 | 2.4330e-003 |
| tblVehicleEF | MDV | 3.5260e-003 | 3.3330e-003 |
| tblVehicleEF | MDV | 2.0090e-003 | 2.2350e-003 |
| tblVehicleEF | MDV | 3.2650e-003 | 3.0670e-003 |
| tblVehicleEF | MDV | 0.09 | 0.09 |
| tblVehicleEF | MDV | 0.22 | 0.21 |
| tblVehicleEF | MDV | 0.09 | 0.08 |
| tblVehicleEF | MDV | 0.04 | 0.08 |
| tblVehicleEF | MDV | 0.70 | 0.70 |
| tblVehicleEF | MDV | 0.32 | 0.49 |
| tblVehicleEF | MDV | 6.1100e-003 | 6.1120e-003 |
| tblVehicleEF | MDV | 1.3430e-003 | 1.3630e-003 |
| tblVehicleEF | MDV | 0.09 | 0.09 |
| tblVehicleEF | MDV | 0.22 | 0.21 |
| tblVehicleEF | MDV | 0.09 | 0.08 |
| tblVehicleEF | MDV | 0.07 | 0.11 |
| tblVehicleEF | MDV | 0.70 | 0.70 |
| tblVehicleEF | MDV | 0.34 | 0.52 |

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|---|---|---|---|
| tblVehicleEF | MH | 1.58 | 6.10 |
| tblVehicleEF | MH | 6.03 | 10.50 |
| tblVehicleEF | MH | 601.02 | 661.46 |
| tblVehicleEF | MH | 27.96 | 33.48 |
| tblVehicleEF | MH | 2.1400e-003 | 2.0750e-003 |
| tblVehicleEF | MH | 1.24 | 1.87 |
| tblVehicleEF | MH | 0.68 | 0.95 |
| tblVehicleEF | MH | 0.05 | 0.05 |
| tblVehicleEF | MH | 8.5770e-003 | 8.5900e-003 |
| tblVehicleEF | MH | 0.02 | 0.03 |
| tblVehicleEF | MH | 6.4800e-004 | 2.1430e-003 |
| tblVehicleEF | MH | 0.02 | 0.02 |
| tblVehicleEF | MH | 2.1440e-003 | 2.1470e-003 |
| tblVehicleEF | MH | 0.02 | 0.03 |
| tblVehicleEF | MH | 5.9500e-004 | 1.8330e-003 |
| tblVehicleEF | MH | 0.93 | 1.48 |
| tblVehicleEF | MH | 0.06 | 0.10 |
| tblVehicleEF | MH | 0.39 | 0.57 |
| tblVehicleEF | MH | 0.06 | 0.19 |
| tblVehicleEF | MH | 1.58 | 2.10 |
| tblVehicleEF | MH | 0.34 | 0.66 |
| tblVehicleEF | MH | 6.6210e-003 | 6.7320e-003 |
| tblVehicleEF | MH | 4.1500e-004 | 5.2500e-004 |
| tblVehicleEF | MH | 0.93 | 1.48 |
| tblVehicleEF | MH | 0.06 | 0.10 |
| tblVehicleEF | MH | 0.39 | 0.57 |
| tblVehicleEF | MH | 0.08 | 0.23 |
| tblVehicleEF | MH | 1.58 | 2.10 |

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|---|---|---|---|
| tblVehicleEF | MH | 0.36 | 0.71 |
| tblVehicleEF | MH | 1.62 | 6.14 |
| tblVehicleEF | MH | 4.80 | 8.39 |
| tblVehicleEF | MH | 601.02 | 661.46 |
| tblVehicleEF | MH | 27.96 | 33.48 |
| tblVehicleEF | MH | 2.1400e-003 | 2.0750e-003 |
| tblVehicleEF | MH | 1.14 | 1.71 |
| tblVehicleEF | MH | 0.65 | 0.91 |
| tblVehicleEF | MH | 0.05 | 0.05 |
| tblVehicleEF | MH | 8.5770e-003 | 8.5900e-003 |
| tblVehicleEF | MH | 0.02 | 0.03 |
| tblVehicleEF | MH | 6.4800e-004 | 2.1430e-003 |
| tblVehicleEF | MH | 0.02 | 0.02 |
| tblVehicleEF | MH | 2.1440e-003 | 2.1470e-003 |
| tblVehicleEF | MH | 0.02 | 0.03 |
| tblVehicleEF | MH | 5.9500e-004 | 1.8330e-003 |
| tblVehicleEF | MH | 1.43 | 2.28 |
| tblVehicleEF | MH | 0.06 | 0.10 |
| tblVehicleEF | MH | 0.61 | 0.92 |
| tblVehicleEF | MH | 0.06 | 0.19 |
| tblVehicleEF | MH | 1.55 | 2.06 |
| tblVehicleEF | MH | 0.29 | 0.56 |
| tblVehicleEF | MH | 6.6210e-003 | 6.7320e-003 |
| tblVehicleEF | MH | 3.9500e-004 | 4.8900e-004 |
| tblVehicleEF | MH | 1.43 | 2.28 |
| tblVehicleEF | MH | 0.06 | 0.10 |
| tblVehicleEF | MH | 0.61 | 0.92 |
| tblVehicleEF | MH | 0.08 | 0.23 |

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|---|---|---|---|
| tblVehicleEF | MH | 1.55 | 2.06 |
| tblVehicleEF | MH | 0.31 | 0.60 |
| tblVehicleEF | MH | 1.58 | 6.09 |
| tblVehicleEF | MH | 6.06 | 10.57 |
| tblVehicleEF | MH | 601.02 | 661.46 |
| tblVehicleEF | MH | 27.96 | 33.48 |
| tblVehicleEF | MH | 2.1400e-003 | 2.0750e-003 |
| tblVehicleEF | MH | 1.21 | 1.83 |
| tblVehicleEF | MH | 0.68 | 0.96 |
| tblVehicleEF | MH | 0.05 | 0.05 |
| tblVehicleEF | MH | 8.5770e-003 | 8.5900e-003 |
| tblVehicleEF | MH | 0.02 | 0.03 |
| tblVehicleEF | MH | 6.4800e-004 | 2.1430e-003 |
| tblVehicleEF | MH | 0.02 | 0.02 |
| tblVehicleEF | MH | 2.1440e-003 | 2.1470e-003 |
| tblVehicleEF | MH | 0.02 | 0.03 |
| tblVehicleEF | MH | 5.9500e-004 | 1.8330e-003 |
| tblVehicleEF | MH | 1.06 | 1.77 |
| tblVehicleEF | MH | 0.08 | 0.13 |
| tblVehicleEF | MH | 0.40 | 0.62 |
| tblVehicleEF | MH | 0.06 | 0.19 |
| tblVehicleEF | MH | 1.67 | 2.22 |
| tblVehicleEF | MH | 0.34 | 0.67 |
| tblVehicleEF | MH | 6.6210e-003 | 6.7310e-003 |
| tblVehicleEF | MH | 4.1600e-004 | 5.2700e-004 |
| tblVehicleEF | MH | 1.06 | 1.77 |
| tblVehicleEF | MH | 0.08 | 0.13 |
| tblVehicleEF | MH | 0.40 | 0.62 |

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|---|---|---|---|
| tblVehicleEF | MH | 0.08 | 0.23 |
| tblVehicleEF | MH | 1.67 | 2.22 |
| tblVehicleEF | MH | 0.36 | 0.72 |
| tblVehicleEF | MHD | 7.4570e-003 | 9.1490e-003 |
| tblVehicleEF | MHD | 3.5470e-003 | 7.4500e-003 |
| tblVehicleEF | MHD | 1.89 | 1.98 |
| tblVehicleEF | MHD | 0.68 | 1.65 |
| tblVehicleEF | MHD | 14.46 | 23.23 |
| tblVehicleEF | MHD | 572.02 | 606.65 |
| tblVehicleEF | MHD | 914.66 | 1,009.37 |
| tblVehicleEF | MHD | 49.61 | 61.80 |
| tblVehicleEF | MHD | 0.02 | 0.02 |
| tblVehicleEF | MHD | 4.69 | 7.20 |
| tblVehicleEF | MHD | 1.64 | 4.51 |
| tblVehicleEF | MHD | 1.63 | 2.33 |
| tblVehicleEF | MHD | 0.01 | 0.04 |
| tblVehicleEF | MHD | 0.11 | 0.11 |
| tblVehicleEF | MHD | 0.01 | 0.01 |
| tblVehicleEF | MHD | 0.04 | 0.12 |
| tblVehicleEF | MHD | 1.4000e-003 | 4.5390e-003 |
| tblVehicleEF | MHD | 0.01 | 0.04 |
| tblVehicleEF | MHD | 0.05 | 0.05 |
| tblVehicleEF | MHD | 2.8150e-003 | 2.8090e-003 |
| tblVehicleEF | MHD | 0.04 | 0.11 |
| tblVehicleEF | MHD | 1.2830e-003 | 3.7970e-003 |
| tblVehicleEF | MHD | 2.3710e-003 | 4.0820e-003 |
| tblVehicleEF | MHD | 0.09 | 0.17 |
| tblVehicleEF | MHD | 0.16 | 0.20 |

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|---|---|---|---|
| tblVehicleEF | MHD | 1.5040e-003 | 2.3050e-003 |
| tblVehicleEF | MHD | 0.09 | 0.21 |
| tblVehicleEF | MHD | 0.42 | 0.69 |
| tblVehicleEF | MHD | 0.86 | 1.62 |
| tblVehicleEF | MHD | 6.0640e-003 | 5.8760e-003 |
| tblVehicleEF | MHD | 9.7510e-003 | 9.8450e-003 |
| tblVehicleEF | MHD | 8.0400e-004 | 1.0420e-003 |
| tblVehicleEF | MHD | 2.3710e-003 | 4.0820e-003 |
| tblVehicleEF | MHD | 0.09 | 0.17 |
| tblVehicleEF | MHD | 0.18 | 0.22 |
| tblVehicleEF | MHD | 1.5040e-003 | 2.3050e-003 |
| tblVehicleEF | MHD | 0.11 | 0.24 |
| tblVehicleEF | MHD | 0.42 | 0.69 |
| tblVehicleEF | MHD | 0.92 | 1.73 |
| tblVehicleEF | MHD | 7.0270e-003 | 8.6220e-003 |
| tblVehicleEF | MHD | 3.5470e-003 | 7.4500e-003 |
| tblVehicleEF | MHD | 1.37 | 1.44 |
| tblVehicleEF | MHD | 0.69 | 1.66 |
| tblVehicleEF | MHD | 11.66 | 19.26 |
| tblVehicleEF | MHD | 606.00 | 642.69 |
| tblVehicleEF | MHD | 914.66 | 1,009.37 |
| tblVehicleEF | MHD | 49.61 | 61.80 |
| tblVehicleEF | MHD | 0.02 | 0.02 |
| tblVehicleEF | MHD | 4.84 | 7.43 |
| tblVehicleEF | MHD | 1.54 | 4.24 |
| tblVehicleEF | MHD | 1.56 | 2.23 |
| tblVehicleEF | MHD | 9.3480e-003 | 0.04 |
| tblVehicleEF | MHD | 0.11 | 0.11 |

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|---|---|---|---|
| tblVehicleEF | MHD | 0.01 | 0.01 |
| tblVehicleEF | MHD | 0.04 | 0.12 |
| tblVehicleEF | MHD | 1.4000e-003 | 4.5390e-003 |
| tblVehicleEF | MHD | 8.6000e-003 | 0.03 |
| tblVehicleEF | MHD | 0.05 | 0.05 |
| tblVehicleEF | MHD | 2.8150e-003 | 2.8090e-003 |
| tblVehicleEF | MHD | 0.04 | 0.11 |
| tblVehicleEF | MHD | 1.2830e-003 | 3.7970e-003 |
| tblVehicleEF | MHD | 3.6620e-003 | 6.4320e-003 |
| tblVehicleEF | MHD | 0.09 | 0.18 |
| tblVehicleEF | MHD | 0.15 | 0.19 |
| tblVehicleEF | MHD | 2.2930e-003 | 3.7370e-003 |
| tblVehicleEF | MHD | 0.09 | 0.21 |
| tblVehicleEF | MHD | 0.41 | 0.67 |
| tblVehicleEF | MHD | 0.76 | 1.40 |
| tblVehicleEF | MHD | 6.4240e-003 | 6.2250e-003 |
| tblVehicleEF | MHD | 9.7510e-003 | 9.8450e-003 |
| tblVehicleEF | MHD | 7.5700e-004 | 9.7300e-004 |
| tblVehicleEF | MHD | 3.6620e-003 | 6.4320e-003 |
| tblVehicleEF | MHD | 0.09 | 0.18 |
| tblVehicleEF | MHD | 0.17 | 0.21 |
| tblVehicleEF | MHD | 2.2930e-003 | 3.7370e-003 |
| tblVehicleEF | MHD | 0.11 | 0.24 |
| tblVehicleEF | MHD | 0.41 | 0.67 |
| tblVehicleEF | MHD | 0.81 | 1.50 |
| tblVehicleEF | MHD | 8.0500e-003 | 9.8770e-003 |
| tblVehicleEF | MHD | 3.5470e-003 | 7.4500e-003 |
| tblVehicleEF | MHD | 2.60 | 2.73 |

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|---|---|---|---|
| tblVehicleEF | MHD | 0.68 | 1.65 |
| tblVehicleEF | MHD | 14.80 | 23.70 |
| tblVehicleEF | MHD | 525.09 | 556.87 |
| tblVehicleEF | MHD | 914.66 | 1,009.37 |
| tblVehicleEF | MHD | 49.61 | 61.80 |
| tblVehicleEF | MHD | 0.02 | 0.02 |
| tblVehicleEF | MHD | 4.48 | 6.88 |
| tblVehicleEF | MHD | 1.61 | 4.42 |
| tblVehicleEF | MHD | 1.64 | 2.34 |
| tblVehicleEF | MHD | 0.01 | 0.05 |
| tblVehicleEF | MHD | 0.11 | 0.11 |
| tblVehicleEF | MHD | 0.01 | 0.01 |
| tblVehicleEF | MHD | 0.04 | 0.12 |
| tblVehicleEF | MHD | 1.4000e-003 | 4.5390e-003 |
| tblVehicleEF | MHD | 0.01 | 0.05 |
| tblVehicleEF | MHD | 0.05 | 0.05 |
| tblVehicleEF | MHD | 2.8150e-003 | 2.8090e-003 |
| tblVehicleEF | MHD | 0.04 | 0.11 |
| tblVehicleEF | MHD | 1.2830e-003 | 3.7970e-003 |
| tblVehicleEF | MHD | 2.5280e-003 | 4.6170e-003 |
| tblVehicleEF | MHD | 0.10 | 0.21 |
| tblVehicleEF | MHD | 0.17 | 0.21 |
| tblVehicleEF | MHD | 1.5250e-003 | 2.4180e-003 |
| tblVehicleEF | MHD | 0.09 | 0.21 |
| tblVehicleEF | MHD | 0.46 | 0.74 |
| tblVehicleEF | MHD | 0.88 | 1.65 |
| tblVehicleEF | MHD | 5.5660e-003 | 5.3940e-003 |
| tblVehicleEF | MHD | 9.7510e-003 | 9.8450e-003 |

| | | | |
|---|---|---|---|
| tblVehicleEF | MHD | 8.1000e-004 | 1.0500e-003 |
| tblVehicleEF | MHD | 2.5280e-003 | 4.6170e-003 |
| tblVehicleEF | MHD | 0.10 | 0.21 |
| tblVehicleEF | MHD | 0.20 | 0.24 |
| tblVehicleEF | MHD | 1.5250e-003 | 2.4180e-003 |
| tblVehicleEF | MHD | 0.11 | 0.24 |
| tblVehicleEF | MHD | 0.46 | 0.74 |
| tblVehicleEF | MHD | 0.94 | 1.76 |
| tblVehicleEF | OBUS | 0.02 | 0.02 |
| tblVehicleEF | OBUS | 2.8030e-003 | 3.2540e-003 |
| tblVehicleEF | OBUS | 2.74 | 2.30 |
| tblVehicleEF | OBUS | 0.97 | 1.83 |
| tblVehicleEF | OBUS | 8.82 | 11.72 |
| tblVehicleEF | OBUS | 534.88 | 573.90 |
| tblVehicleEF | OBUS | 1,017.85 | 1,092.67 |
| tblVehicleEF | OBUS | 32.78 | 37.32 |
| tblVehicleEF | OBUS | 1.9430e-003 | 1.9230e-003 |
| tblVehicleEF | OBUS | 4.65 | 7.28 |
| tblVehicleEF | OBUS | 2.29 | 5.66 |
| tblVehicleEF | OBUS | 1.25 | 1.58 |
| tblVehicleEF | OBUS | 9.5470e-003 | 0.06 |
| tblVehicleEF | OBUS | 0.10 | 0.09 |
| tblVehicleEF | OBUS | 0.01 | 0.01 |
| tblVehicleEF | OBUS | 0.04 | 0.10 |
| tblVehicleEF | OBUS | 5.8000e-004 | 1.2710e-003 |
| tblVehicleEF | OBUS | 8.7830e-003 | 0.05 |
| tblVehicleEF | OBUS | 0.04 | 0.04 |
| tblVehicleEF | OBUS | 2.6470e-003 | 2.6000e-003 |

| | | | |
|---|---|---|---|
| tblVehicleEF | OBUS | 0.04 | 0.09 |
| tblVehicleEF | OBUS | 5.3500e-004 | 1.1010e-003 |
| tblVehicleEF | OBUS | 9.6800e-004 | 1.0180e-003 |
| tblVehicleEF | OBUS | 0.03 | 0.03 |
| tblVehicleEF | OBUS | 0.47 | 0.49 |
| tblVehicleEF | OBUS | 5.3200e-004 | 4.9100e-004 |
| tblVehicleEF | OBUS | 0.12 | 0.21 |
| tblVehicleEF | OBUS | 0.33 | 0.29 |
| tblVehicleEF | OBUS | 0.54 | 0.75 |
| tblVehicleEF | OBUS | 5.6700e-003 | 5.5590e-003 |
| tblVehicleEF | OBUS | 0.01 | 0.01 |
| tblVehicleEF | OBUS | 5.1900e-004 | 5.8600e-004 |
| tblVehicleEF | OBUS | 9.6800e-004 | 1.0180e-003 |
| tblVehicleEF | OBUS | 0.03 | 0.03 |
| tblVehicleEF | OBUS | 0.53 | 0.56 |
| tblVehicleEF | OBUS | 5.3200e-004 | 4.9100e-004 |
| tblVehicleEF | OBUS | 0.14 | 0.24 |
| tblVehicleEF | OBUS | 0.33 | 0.29 |
| tblVehicleEF | OBUS | 0.58 | 0.80 |
| tblVehicleEF | OBUS | 0.02 | 0.02 |
| tblVehicleEF | OBUS | 2.8030e-003 | 3.2540e-003 |
| tblVehicleEF | OBUS | 1.99 | 1.67 |
| tblVehicleEF | OBUS | 0.98 | 1.85 |
| tblVehicleEF | OBUS | 7.13 | 9.57 |
| tblVehicleEF | OBUS | 566.66 | 607.99 |
| tblVehicleEF | OBUS | 1,017.85 | 1,092.67 |
| tblVehicleEF | OBUS | 32.78 | 37.32 |
| tblVehicleEF | OBUS | 1.9430e-003 | 1.9230e-003 |

| | | | |
|---|---|---|---|
| tblVehicleEF | OBUS | 4.79 | 7.51 |
| tblVehicleEF | OBUS | 2.15 | 5.32 |
| tblVehicleEF | OBUS | 1.20 | 1.52 |
| tblVehicleEF | OBUS | 8.0480e-003 | 0.05 |
| tblVehicleEF | OBUS | 0.10 | 0.09 |
| tblVehicleEF | OBUS | 0.01 | 0.01 |
| tblVehicleEF | OBUS | 0.04 | 0.10 |
| tblVehicleEF | OBUS | 5.8000e-004 | 1.2710e-003 |
| tblVehicleEF | OBUS | 7.4040e-003 | 0.05 |
| tblVehicleEF | OBUS | 0.04 | 0.04 |
| tblVehicleEF | OBUS | 2.6470e-003 | 2.6000e-003 |
| tblVehicleEF | OBUS | 0.04 | 0.09 |
| tblVehicleEF | OBUS | 5.3500e-004 | 1.1010e-003 |
| tblVehicleEF | OBUS | 1.4480e-003 | 1.5430e-003 |
| tblVehicleEF | OBUS | 0.03 | 0.03 |
| tblVehicleEF | OBUS | 0.44 | 0.46 |
| tblVehicleEF | OBUS | 7.8500e-004 | 7.6700e-004 |
| tblVehicleEF | OBUS | 0.12 | 0.21 |
| tblVehicleEF | OBUS | 0.32 | 0.28 |
| tblVehicleEF | OBUS | 0.48 | 0.66 |
| tblVehicleEF | OBUS | 6.0070e-003 | 5.8890e-003 |
| tblVehicleEF | OBUS | 0.01 | 0.01 |
| tblVehicleEF | OBUS | 4.9100e-004 | 5.4900e-004 |
| tblVehicleEF | OBUS | 1.4480e-003 | 1.5430e-003 |
| tblVehicleEF | OBUS | 0.03 | 0.03 |
| tblVehicleEF | OBUS | 0.50 | 0.53 |
| tblVehicleEF | OBUS | 7.8500e-004 | 7.6700e-004 |
| tblVehicleEF | OBUS | 0.14 | 0.24 |

| | | | |
|---|---|---|---|
| tblVehicleEF | OBUS | 0.32 | 0.28 |
| tblVehicleEF | OBUS | 0.51 | 0.70 |
| tblVehicleEF | OBUS | 0.02 | 0.02 |
| tblVehicleEF | OBUS | 2.8030e-003 | 3.2540e-003 |
| tblVehicleEF | OBUS | 3.78 | 3.17 |
| tblVehicleEF | OBUS | 0.97 | 1.83 |
| tblVehicleEF | OBUS | 9.01 | 11.95 |
| tblVehicleEF | OBUS | 491.00 | 526.81 |
| tblVehicleEF | OBUS | 1,017.85 | 1,092.67 |
| tblVehicleEF | OBUS | 32.78 | 37.32 |
| tblVehicleEF | OBUS | 1.9430e-003 | 1.9230e-003 |
| tblVehicleEF | OBUS | 4.44 | 6.96 |
| tblVehicleEF | OBUS | 2.24 | 5.56 |
| tblVehicleEF | OBUS | 1.25 | 1.59 |
| tblVehicleEF | OBUS | 0.01 | 0.07 |
| tblVehicleEF | OBUS | 0.10 | 0.09 |
| tblVehicleEF | OBUS | 0.01 | 0.01 |
| tblVehicleEF | OBUS | 0.04 | 0.10 |
| tblVehicleEF | OBUS | 5.8000e-004 | 1.2710e-003 |
| tblVehicleEF | OBUS | 0.01 | 0.07 |
| tblVehicleEF | OBUS | 0.04 | 0.04 |
| tblVehicleEF | OBUS | 2.6470e-003 | 2.6000e-003 |
| tblVehicleEF | OBUS | 0.04 | 0.09 |
| tblVehicleEF | OBUS | 5.3500e-004 | 1.1010e-003 |
| tblVehicleEF | OBUS | 9.8800e-004 | 1.1260e-003 |
| tblVehicleEF | OBUS | 0.03 | 0.03 |
| tblVehicleEF | OBUS | 0.50 | 0.53 |
| tblVehicleEF | OBUS | 5.2500e-004 | 5.0500e-004 |

| | | | |
|---|---|---|---|
| tblVehicleEF | OBUS | 0.12 | 0.21 |
| tblVehicleEF | OBUS | 0.35 | 0.31 |
| tblVehicleEF | OBUS | 0.55 | 0.76 |
| tblVehicleEF | OBUS | 5.2050e-003 | 5.1030e-003 |
| tblVehicleEF | OBUS | 0.01 | 0.01 |
| tblVehicleEF | OBUS | 5.2200e-004 | 5.9000e-004 |
| tblVehicleEF | OBUS | 9.8800e-004 | 1.1260e-003 |
| tblVehicleEF | OBUS | 0.03 | 0.03 |
| tblVehicleEF | OBUS | 0.57 | 0.60 |
| tblVehicleEF | OBUS | 5.2500e-004 | 5.0500e-004 |
| tblVehicleEF | OBUS | 0.14 | 0.24 |
| tblVehicleEF | OBUS | 0.35 | 0.31 |
| tblVehicleEF | OBUS | 0.59 | 0.81 |
| tblVehicleEF | SBUS | 4.4530e-003 | 5.3980e-003 |
| tblVehicleEF | SBUS | 5.5860e-003 | 7.5320e-003 |
| tblVehicleEF | SBUS | 1.05 | 1.04 |
| tblVehicleEF | SBUS | 2.96 | 5.50 |
| tblVehicleEF | SBUS | 27.16 | 35.83 |
| tblVehicleEF | SBUS | 547.00 | 581.72 |
| tblVehicleEF | SBUS | 1,037.25 | 1,149.21 |
| tblVehicleEF | SBUS | 115.53 | 132.92 |
| tblVehicleEF | SBUS | 5.7600e-004 | 6.0200e-004 |
| tblVehicleEF | SBUS | 7.58 | 8.19 |
| tblVehicleEF | SBUS | 7.03 | 8.40 |
| tblVehicleEF | SBUS | 2.02 | 2.33 |
| tblVehicleEF | SBUS | 0.01 | 0.03 |
| tblVehicleEF | SBUS | 0.57 | 0.58 |
| tblVehicleEF | SBUS | 0.01 | 0.01 |

| | | | |
|---|---|---|---|
| tblVehicleEF | SBUS | 0.05 | 0.09 |
| tblVehicleEF | SBUS | 3.6960e-003 | 8.0580e-003 |
| tblVehicleEF | SBUS | 0.01 | 0.03 |
| tblVehicleEF | SBUS | 0.24 | 0.25 |
| tblVehicleEF | SBUS | 2.7470e-003 | 2.7610e-003 |
| tblVehicleEF | SBUS | 0.04 | 0.08 |
| tblVehicleEF | SBUS | 3.4060e-003 | 6.8660e-003 |
| tblVehicleEF | SBUS | 0.03 | 0.04 |
| tblVehicleEF | SBUS | 0.21 | 0.30 |
| tblVehicleEF | SBUS | 0.10 | 0.12 |
| tblVehicleEF | SBUS | 0.01 | 0.02 |
| tblVehicleEF | SBUS | 0.30 | 0.45 |
| tblVehicleEF | SBUS | 1.95 | 2.32 |
| tblVehicleEF | SBUS | 1.66 | 2.50 |
| tblVehicleEF | SBUS | 5.7980e-003 | 5.6340e-003 |
| tblVehicleEF | SBUS | 0.01 | 0.01 |
| tblVehicleEF | SBUS | 1.7600e-003 | 1.9890e-003 |
| tblVehicleEF | SBUS | 0.03 | 0.04 |
| tblVehicleEF | SBUS | 0.21 | 0.30 |
| tblVehicleEF | SBUS | 0.11 | 0.13 |
| tblVehicleEF | SBUS | 0.01 | 0.02 |
| tblVehicleEF | SBUS | 0.33 | 0.50 |
| tblVehicleEF | SBUS | 1.95 | 2.32 |
| tblVehicleEF | SBUS | 1.77 | 2.68 |
| tblVehicleEF | SBUS | 4.1970e-003 | 5.0870e-003 |
| tblVehicleEF | SBUS | 5.5860e-003 | 7.5320e-003 |
| tblVehicleEF | SBUS | 0.76 | 0.76 |
| tblVehicleEF | SBUS | 3.03 | 5.46 |

| | | | |
|---|---|---|---|
| tblVehicleEF | SBUS | 23.01 | 30.86 |
| tblVehicleEF | SBUS | 579.49 | 616.28 |
| tblVehicleEF | SBUS | 1,037.25 | 1,149.21 |
| tblVehicleEF | SBUS | 115.53 | 132.92 |
| tblVehicleEF | SBUS | 5.7600e-004 | 6.0200e-004 |
| tblVehicleEF | SBUS | 7.82 | 8.46 |
| tblVehicleEF | SBUS | 6.62 | 7.90 |
| tblVehicleEF | SBUS | 1.91 | 2.20 |
| tblVehicleEF | SBUS | 0.01 | 0.02 |
| tblVehicleEF | SBUS | 0.57 | 0.58 |
| tblVehicleEF | SBUS | 0.01 | 0.01 |
| tblVehicleEF | SBUS | 0.05 | 0.09 |
| tblVehicleEF | SBUS | 3.6960e-003 | 8.0580e-003 |
| tblVehicleEF | SBUS | 0.01 | 0.02 |
| tblVehicleEF | SBUS | 0.24 | 0.25 |
| tblVehicleEF | SBUS | 2.7470e-003 | 2.7610e-003 |
| tblVehicleEF | SBUS | 0.04 | 0.08 |
| tblVehicleEF | SBUS | 3.4060e-003 | 6.8660e-003 |
| tblVehicleEF | SBUS | 0.05 | 0.06 |
| tblVehicleEF | SBUS | 0.21 | 0.31 |
| tblVehicleEF | SBUS | 0.09 | 0.11 |
| tblVehicleEF | SBUS | 0.02 | 0.03 |
| tblVehicleEF | SBUS | 0.30 | 0.45 |
| tblVehicleEF | SBUS | 1.79 | 2.14 |
| tblVehicleEF | SBUS | 1.49 | 2.20 |
| tblVehicleEF | SBUS | 6.1430e-003 | 5.9690e-003 |
| tblVehicleEF | SBUS | 0.01 | 0.01 |
| tblVehicleEF | SBUS | 1.6900e-003 | 1.9010e-003 |

| | | | |
|---|---|---|---|
| tblVehicleEF | SBUS | 0.05 | 0.06 |
| tblVehicleEF | SBUS | 0.21 | 0.31 |
| tblVehicleEF | SBUS | 0.10 | 0.12 |
| tblVehicleEF | SBUS | 0.02 | 0.03 |
| tblVehicleEF | SBUS | 0.34 | 0.50 |
| tblVehicleEF | SBUS | 1.79 | 2.14 |
| tblVehicleEF | SBUS | 1.59 | 2.36 |
| tblVehicleEF | SBUS | 4.8080e-003 | 5.8270e-003 |
| tblVehicleEF | SBUS | 5.5860e-003 | 7.5320e-003 |
| tblVehicleEF | SBUS | 1.45 | 1.44 |
| tblVehicleEF | SBUS | 2.94 | 5.49 |
| tblVehicleEF | SBUS | 27.94 | 36.79 |
| tblVehicleEF | SBUS | 502.12 | 533.99 |
| tblVehicleEF | SBUS | 1,037.25 | 1,149.21 |
| tblVehicleEF | SBUS | 115.53 | 132.92 |
| tblVehicleEF | SBUS | 5.7600e-004 | 6.0200e-004 |
| tblVehicleEF | SBUS | 7.24 | 7.83 |
| tblVehicleEF | SBUS | 6.92 | 8.26 |
| tblVehicleEF | SBUS | 2.04 | 2.36 |
| tblVehicleEF | SBUS | 0.02 | 0.03 |
| tblVehicleEF | SBUS | 0.57 | 0.58 |
| tblVehicleEF | SBUS | 0.01 | 0.01 |
| tblVehicleEF | SBUS | 0.05 | 0.09 |
| tblVehicleEF | SBUS | 3.6960e-003 | 8.0580e-003 |
| tblVehicleEF | SBUS | 0.02 | 0.03 |
| tblVehicleEF | SBUS | 0.24 | 0.25 |
| tblVehicleEF | SBUS | 2.7470e-003 | 2.7610e-003 |
| tblVehicleEF | SBUS | 0.04 | 0.08 |

| | | | |
|---|---|---|---|
| tblVehicleEF | SBUS | 3.4060e-003 | 6.8660e-003 |
| tblVehicleEF | SBUS | 0.04 | 0.05 |
| tblVehicleEF | SBUS | 0.25 | 0.38 |
| tblVehicleEF | SBUS | 0.10 | 0.13 |
| tblVehicleEF | SBUS | 0.02 | 0.02 |
| tblVehicleEF | SBUS | 0.29 | 0.45 |
| tblVehicleEF | SBUS | 2.30 | 2.74 |
| tblVehicleEF | SBUS | 1.69 | 2.56 |
| tblVehicleEF | SBUS | 5.3230e-003 | 5.1720e-003 |
| tblVehicleEF | SBUS | 0.01 | 0.01 |
| tblVehicleEF | SBUS | 1.7730e-003 | 2.0050e-003 |
| tblVehicleEF | SBUS | 0.04 | 0.05 |
| tblVehicleEF | SBUS | 0.25 | 0.38 |
| tblVehicleEF | SBUS | 0.12 | 0.14 |
| tblVehicleEF | SBUS | 0.02 | 0.02 |
| tblVehicleEF | SBUS | 0.33 | 0.50 |
| tblVehicleEF | SBUS | 2.30 | 2.74 |
| tblVehicleEF | SBUS | 1.81 | 2.74 |
| tblVehicleEF | UBUS | 4.38 | 5.67 |
| tblVehicleEF | UBUS | 9.86 | 11.01 |
| tblVehicleEF | UBUS | 1,917.54 | 2,172.38 |
| tblVehicleEF | UBUS | 27.32 | 30.02 |
| tblVehicleEF | UBUS | 2.4910e-003 | 2.5300e-003 |
| tblVehicleEF | UBUS | 10.91 | 13.44 |
| tblVehicleEF | UBUS | 1.17 | 1.24 |
| tblVehicleEF | UBUS | 0.68 | 0.68 |
| tblVehicleEF | UBUS | 0.18 | 0.21 |
| tblVehicleEF | UBUS | 6.0900e-004 | 8.7100e-004 |

| | | | |
|---|---|---|---|
| tblVehicleEF | UBUS | 0.29 | 0.29 |
| tblVehicleEF | UBUS | 0.16 | 0.20 |
| tblVehicleEF | UBUS | 5.6400e-004 | 7.7100e-004 |
| tblVehicleEF | UBUS | 5.4570e-003 | 5.8700e-003 |
| tblVehicleEF | UBUS | 0.09 | 0.10 |
| tblVehicleEF | UBUS | 3.0100e-003 | 3.2100e-003 |
| tblVehicleEF | UBUS | 0.72 | 0.84 |
| tblVehicleEF | UBUS | 0.78 | 0.70 |
| tblVehicleEF | UBUS | 0.73 | 0.80 |
| tblVehicleEF | UBUS | 0.02 | 0.02 |
| tblVehicleEF | UBUS | 4.8100e-004 | 5.0200e-004 |
| tblVehicleEF | UBUS | 5.4570e-003 | 5.8700e-003 |
| tblVehicleEF | UBUS | 0.09 | 0.10 |
| tblVehicleEF | UBUS | 3.0100e-003 | 3.2100e-003 |
| tblVehicleEF | UBUS | 0.80 | 0.93 |
| tblVehicleEF | UBUS | 0.78 | 0.70 |
| tblVehicleEF | UBUS | 0.78 | 0.86 |
| tblVehicleEF | UBUS | 4.44 | 5.69 |
| tblVehicleEF | UBUS | 8.28 | 9.29 |
| tblVehicleEF | UBUS | 1,917.54 | 2,172.38 |
| tblVehicleEF | UBUS | 27.32 | 30.02 |
| tblVehicleEF | UBUS | 2.4910e-003 | 2.5300e-003 |
| tblVehicleEF | UBUS | 10.28 | 12.66 |
| tblVehicleEF | UBUS | 1.12 | 1.18 |
| tblVehicleEF | UBUS | 0.68 | 0.68 |
| tblVehicleEF | UBUS | 0.18 | 0.21 |
| tblVehicleEF | UBUS | 6.0900e-004 | 8.7100e-004 |
| tblVehicleEF | UBUS | 0.29 | 0.29 |

| | | | |
|---|---|---|---|
| tblVehicleEF | UBUS | 0.16 | 0.20 |
| tblVehicleEF | UBUS | 5.6400e-004 | 7.7100e-004 |
| tblVehicleEF | UBUS | 8.0610e-003 | 8.7030e-003 |
| tblVehicleEF | UBUS | 0.10 | 0.11 |
| tblVehicleEF | UBUS | 4.5490e-003 | 4.9630e-003 |
| tblVehicleEF | UBUS | 0.73 | 0.85 |
| tblVehicleEF | UBUS | 0.73 | 0.65 |
| tblVehicleEF | UBUS | 0.65 | 0.72 |
| tblVehicleEF | UBUS | 0.02 | 0.02 |
| tblVehicleEF | UBUS | 4.5400e-004 | 4.7300e-004 |
| tblVehicleEF | UBUS | 8.0610e-003 | 8.7030e-003 |
| tblVehicleEF | UBUS | 0.10 | 0.11 |
| tblVehicleEF | UBUS | 4.5490e-003 | 4.9630e-003 |
| tblVehicleEF | UBUS | 0.81 | 0.94 |
| tblVehicleEF | UBUS | 0.73 | 0.65 |
| tblVehicleEF | UBUS | 0.70 | 0.77 |
| tblVehicleEF | UBUS | 4.37 | 5.66 |
| tblVehicleEF | UBUS | 9.99 | 11.15 |
| tblVehicleEF | UBUS | 1,917.54 | 2,172.38 |
| tblVehicleEF | UBUS | 27.32 | 30.02 |
| tblVehicleEF | UBUS | 2.4910e-003 | 2.5300e-003 |
| tblVehicleEF | UBUS | 10.70 | 13.18 |
| tblVehicleEF | UBUS | 1.18 | 1.24 |
| tblVehicleEF | UBUS | 0.68 | 0.68 |
| tblVehicleEF | UBUS | 0.18 | 0.21 |
| tblVehicleEF | UBUS | 6.0900e-004 | 8.7100e-004 |
| tblVehicleEF | UBUS | 0.29 | 0.29 |
| tblVehicleEF | UBUS | 0.16 | 0.20 |

| | | | |
|---|---|---|---|
| tblVehicleEF | UBUS | 5.6400e-004 | 7.7100e-004 |
| tblVehicleEF | UBUS | 6.2690e-003 | 6.8710e-003 |
| tblVehicleEF | UBUS | 0.12 | 0.13 |
| tblVehicleEF | UBUS | 3.2440e-003 | 3.5260e-003 |
| tblVehicleEF | UBUS | 0.72 | 0.84 |
| tblVehicleEF | UBUS | 0.92 | 0.81 |
| tblVehicleEF | UBUS | 0.73 | 0.81 |
| tblVehicleEF | UBUS | 0.02 | 0.02 |
| tblVehicleEF | UBUS | 4.8300e-004 | 5.0500e-004 |
| tblVehicleEF | UBUS | 6.2690e-003 | 6.8710e-003 |
| tblVehicleEF | UBUS | 0.12 | 0.13 |
| tblVehicleEF | UBUS | 3.2440e-003 | 3.5260e-003 |
| tblVehicleEF | UBUS | 0.80 | 0.93 |
| tblVehicleEF | UBUS | 0.92 | 0.81 |
| tblVehicleEF | UBUS | 0.78 | 0.87 |

## 2.0 Emissions Summary

## 2.1 Overall Construction (Maximum Daily Emission)

### Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2020 | 4.6144 | 49.4795 | 39.6290 | 0.0655 | 18.3372 | 2.2642 | 20.2701 | 10.0025 | 2.0831 | 11.7808 | 0.0000 | 6,250.2177 | 6,250.2177 | 1.9456 | 0.0000 | 6,291.0760 |
| **Total** | **4.6144** | **49.4795** | **39.6290** | **0.0655** | **18.3372** | **2.2642** | **20.2701** | **10.0025** | **2.0831** | **11.7808** | **0.0000** | **6,250.2177** | **6,250.2177** | **1.9456** | **0.0000** | **6,291.0760** |

### Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2020 | 0.8207 | 3.3734 | 35.9820 | 0.0655 | 4.7875 | 0.1031 | 4.8530 | 2.5545 | 0.1029 | 2.6198 | 0.0000 | 6,250.2177 | 6,250.2177 | 1.9456 | 0.0000 | 6,291.0760 |
| **Total** | **0.8207** | **3.3734** | **35.9820** | **0.0655** | **4.7875** | **0.1031** | **4.8530** | **2.5545** | **0.1029** | **2.6198** | **0.0000** | **6,250.2177** | **6,250.2177** | **1.9456** | **0.0000** | **6,291.0760** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **82.22** | **93.18** | **9.20** | **0.00** | **73.89** | **95.45** | **76.06** | **74.46** | **95.06** | **77.76** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 2.2 Overall Operational

### Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

### Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 5/1/2020 | 5/31/2020 | 5 | 21 | |
| 2 | Grading | Grading | 6/1/2020 | 6/30/2020 | 5 | 22 | |
| 3 | Paving | Paving | 7/1/2020 | 7/31/2020 | 5 | 23 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 50**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Site Preparation | Rubber Tired Dozers | 3 | 8.00 | 255 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Grading | Excavators | 2 | 8.00 | 162 | 0.38 |
| Grading | Graders | 1 | 8.00 | 174 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 255 | 0.40 |
| Grading | Scrapers | 2 | 8.00 | 361 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Paving | Pavers | 2 | 8.00 | 125 | 0.42 |
| Paving | Paving Equipment | 2 | 8.00 | 130 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 7 | 18.00 | 0.00 | 0.00 | 19.80 | 7.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 8 | 20.00 | 0.00 | 0.00 | 19.80 | 7.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 19.80 | 7.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Clean Paved Roads

## 3.2 Site Preparation - 2020

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 18.0663 | 0.0000 | 18.0663 | 9.9307 | 0.0000 | 9.9307 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.7250 | 38.8640 | 32.9264 | 0.0391 | | 1.9309 | 1.9309 | | 1.7764 | 1.7764 | | 3,792.2816 | 3,792.2816 | 1.2265 | | 3,818.0381 |
| **Total** | **3.7250** | **38.8640** | **32.9264** | **0.0391** | **18.0663** | **1.9309** | **19.9971** | **9.9307** | **1.7764** | **11.7071** | | **3,792.2816** | **3,792.2816** | **1.2265** | | **3,818.0381** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0578 | 0.0860 | 1.0829 | 3.4100e-003 | 0.2709 | 2.0200e-003 | 0.2730 | 0.0719 | 1.8700e-003 | 0.0737 | | 245.2580 | 245.2580 | 0.0111 | | 245.4909 |
| **Total** | **0.0578** | **0.0860** | **1.0829** | **3.4100e-003** | **0.2709** | **2.0200e-003** | **0.2730** | **0.0719** | **1.8700e-003** | **0.0737** | | **245.2580** | **245.2580** | **0.0111** | | **245.4909** |

## 3.2 Site Preparation - 2020

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 4.5166 | 0.0000 | 4.5166 | 2.4827 | 0.0000 | 2.4827 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.4757 | 2.0615 | 21.2415 | 0.0391 | | 0.0634 | 0.0634 | | 0.0634 | 0.0634 | 0.0000 | 3,792.2816 | 3,792.2816 | 1.2265 | | 3,818.0381 |
| **Total** | **0.4757** | **2.0615** | **21.2415** | **0.0391** | **4.5166** | **0.0634** | **4.5800** | **2.4827** | **0.0634** | **2.5461** | **0.0000** | **3,792.2816** | **3,792.2816** | **1.2265** | | **3,818.0381** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0578 | 0.0860 | 1.0829 | 3.4100e-003 | 0.2709 | 2.0200e-003 | 0.2730 | 0.0719 | 1.8700e-003 | 0.0737 | | 245.2580 | 245.2580 | 0.0111 | | 245.4909 |
| **Total** | **0.0578** | **0.0860** | **1.0829** | **3.4100e-003** | **0.2709** | **2.0200e-003** | **0.2730** | **0.0719** | **1.8700e-003** | **0.0737** | | **245.2580** | **245.2580** | **0.0111** | | **245.4909** |

## 3.3 Grading - 2020

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 8.4323 | 0.0000 | 8.4323 | 3.5705 | 0.0000 | 3.5705 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.5501 | 49.3839 | 38.4257 | 0.0617 | | 2.2619 | 2.2619 | | 2.0810 | 2.0810 | | 5,977.7088 | 5,977.7088 | 1.9333 | | 6,018.3084 |
| **Total** | **4.5501** | **49.3839** | **38.4257** | **0.0617** | **8.4323** | **2.2619** | **10.6943** | **3.5705** | **2.0810** | **5.6515** | | **5,977.7088** | **5,977.7088** | **1.9333** | | **6,018.3084** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0642 | 0.0956 | 1.2032 | 3.7800e-003 | 0.3010 | 2.2400e-003 | 0.3033 | 0.0798 | 2.0800e-003 | 0.0819 | | 272.5089 | 272.5089 | 0.0123 | | 272.7676 |
| **Total** | **0.0642** | **0.0956** | **1.2032** | **3.7800e-003** | **0.3010** | **2.2400e-003** | **0.3033** | **0.0798** | **2.0800e-003** | **0.0819** | | **272.5089** | **272.5089** | **0.0123** | | **272.7676** |

## 3.3 Grading - 2020

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.1081 | 0.0000 | 2.1081 | 0.8926 | 0.0000 | 0.8926 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.7564 | 3.2778 | 34.7787 | 0.0617 | | 0.1009 | 0.1009 | | 0.1009 | 0.1009 | 0.0000 | 5,977.7088 | 5,977.7088 | 1.9333 | | 6,018.3084 |
| **Total** | **0.7564** | **3.2778** | **34.7787** | **0.0617** | **2.1081** | **0.1009** | **2.2089** | **0.8926** | **0.1009** | **0.9935** | **0.0000** | **5,977.7088** | **5,977.7088** | **1.9333** | | **6,018.3084** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0642 | 0.0956 | 1.2032 | 3.7800e-003 | 0.3010 | 2.2400e-003 | 0.3033 | 0.0798 | 2.0800e-003 | 0.0819 | | 272.5089 | 272.5089 | 0.0123 | | 272.7676 |
| **Total** | **0.0642** | **0.0956** | **1.2032** | **3.7800e-003** | **0.3010** | **2.2400e-003** | **0.3033** | **0.0798** | **2.0800e-003** | **0.0819** | | **272.5089** | **272.5089** | **0.0123** | | **272.7676** |

## 3.4 Paving - 2020

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.3301 | 13.7845 | 14.3523 | 0.0223 | | 0.7390 | 0.7390 | | 0.6799 | 0.6799 | | 2,160.7571 | 2,160.7571 | 0.6988 | | 2,175.4326 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.3301** | **13.7845** | **14.3523** | **0.0223** | | **0.7390** | **0.7390** | | **0.6799** | **0.6799** | | **2,160.7571** | **2,160.7571** | **0.6988** | | **2,175.4326** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0482 | 0.0717 | 0.9024 | 2.8400e-003 | 0.2258 | 1.6800e-003 | 0.2275 | 0.0599 | 1.5600e-003 | 0.0614 | | 204.3816 | 204.3816 | 9.2400e-003 | | 204.5757 |
| **Total** | **0.0482** | **0.0717** | **0.9024** | **2.8400e-003** | **0.2258** | **1.6800e-003** | **0.2275** | **0.0599** | **1.5600e-003** | **0.0614** | | **204.3816** | **204.3816** | **9.2400e-003** | | **204.5757** |

### 3.4 Paving - 2020

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.2745 | 1.1895 | 16.9276 | 0.0223 | | 0.0366 | 0.0366 | | 0.0366 | 0.0366 | 0.0000 | 2,160.7571 | 2,160.7571 | 0.6988 | | 2,175.4326 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.2745** | **1.1895** | **16.9276** | **0.0223** | | **0.0366** | **0.0366** | | **0.0366** | **0.0366** | **0.0000** | **2,160.7571** | **2,160.7571** | **0.6988** | | **2,175.4326** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0482 | 0.0717 | 0.9024 | 2.8400e-003 | 0.2258 | 1.6800e-003 | 0.2275 | 0.0599 | 1.5600e-003 | 0.0614 | | 204.3816 | 204.3816 | 9.2400e-003 | | 204.5757 |
| **Total** | **0.0482** | **0.0717** | **0.9024** | **2.8400e-003** | **0.2258** | **1.6800e-003** | **0.2275** | **0.0599** | **1.5600e-003** | **0.0614** | | **204.3816** | **204.3816** | **9.2400e-003** | | **204.5757** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |

### 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| General Heavy Industry | 0.00 | 0.00 | 0.00 | | |
| Total | 0.00 | 0.00 | 0.00 | | |

### 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| General Heavy Industry | 18.50 | 10.10 | 7.90 | 59.00 | 28.00 | 13.00 | 92 | 5 | 3 |

| LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.516610 | 0.060517 | 0.179979 | 0.140587 | 0.041566 | 0.006616 | 0.015092 | 0.027587 | 0.001923 | 0.002530 | 0.004314 | 0.000602 | 0.002075 |

### 4.4 Fleet Mix

## 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| General Heavy Industry | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

### 5.2 Energy by Land Use - NaturalGas

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| General Heavy Industry | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | | **0.0000** |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | | **0.0000** |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Vegetation

# Chiquita Canyon Compost

**South Coast Air Basin, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| General Heavy Industry | 0.00 | 1000sqft | 41.00 | 0.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Rural | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 31 |
| **Climate Zone** | 8 | | | **Operational Year** | 2014 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 630.89 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - permitted composting area

Construction Phase - Operating emissions modeled as light grading

Off-road Equipment -

Off-road Equipment - equipment from CDS EIR

Off-road Equipment -

Grading - operating emissions assume 3 acres per day disturbed

Construction Off-road Equipment Mitigation - Enhanced fugitive dust control practices employed, per 11/16/15 email from Brenda Eels of CH2m. 75% control for earthmoving dust, 55% for unpaved roads

Operational Off-Road Equipment - no comment

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstDustMitigation | WaterExposedAreaPM10PercentReduction | 61 | 75 |
| tblConstDustMitigation | WaterExposedAreaPM25PercentReduction | 61 | 75 |
| tblConstructionPhase | NumDays | 75.00 | 20.00 |
| tblConstructionPhase | NumDays | 75.00 | 22.00 |
| tblConstructionPhase | NumDays | 55.00 | 23.00 |
| tblConstructionPhase | NumDays | 30.00 | 23.00 |
| tblConstructionPhase | PhaseStartDate | 6/1/2019 | 6/3/2019 |
| tblConstructionPhase | PhaseStartDate | 6/29/2019 | 7/1/2019 |
| tblGrading | AcresOfGrading | 0.00 | 66.00 |
| tblLandUse | LotAcreage | 0.00 | 41.00 |
| tblOffRoadEquipment | HorsePower | 255.00 | 235.00 |
| tblOffRoadEquipment | HorsePower | 89.00 | 93.00 |
| tblOffRoadEquipment | HorsePower | 400.00 | 275.00 |
| tblOffRoadEquipment | HorsePower | 167.00 | 580.00 |
| tblOffRoadEquipment | HorsePower | 167.00 | 260.00 |
| tblOffRoadEquipment | HorsePower | 167.00 | 139.00 |
| tblOffRoadEquipment | LoadFactor | 0.40 | 0.59 |
| tblOffRoadEquipment | LoadFactor | 0.20 | 0.30 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.57 |
| tblOffRoadEquipment | LoadFactor | 0.40 | 0.59 |
| tblOffRoadEquipment | LoadFactor | 0.40 | 0.59 |
| tblOffRoadEquipment | LoadFactor | 0.40 | 0.59 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 7.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | PhaseName | | Operating |
| tblOffRoadEquipment | PhaseName | | Operating |
| tblOffRoadEquipment | PhaseName | | Operating |
| tblOffRoadEquipment | PhaseName | | Operating |
| tblOffRoadEquipment | PhaseName | | Operating |
| tblOffRoadEquipment | UsageHours | 8.00 | 2.60 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |

## 2.0 Emissions Summary

## 2.1 Overall Construction (Maximum Daily Emission)

### Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2019 | 4.9599 | 54.3008 | 41.5792 | 0.0655 | 18.3372 | 2.5072 | 20.4897 | 10.0025 | 2.3066 | 11.9828 | 0.0000 | 6,395.3152 | 6,395.3152 | 1.9466 | 0.0000 | 6,436.1930 |
| **Total** | **4.9599** | **54.3008** | **41.5792** | **0.0655** | **18.3372** | **2.5072** | **20.4897** | **10.0025** | **2.3066** | **11.9828** | **0.0000** | **6,395.3152** | **6,395.3152** | **1.9466** | **0.0000** | **6,436.1930** |

### Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2019 | 4.9599 | 54.3008 | 41.5792 | 0.0655 | 4.7875 | 2.5072 | 6.9400 | 2.5545 | 2.3066 | 4.5348 | 0.0000 | 6,395.3152 | 6,395.3152 | 1.9466 | 0.0000 | 6,436.1930 |
| **Total** | **4.9599** | **54.3008** | **41.5792** | **0.0655** | **4.7875** | **2.5072** | **6.9400** | **2.5545** | **2.3066** | **4.5348** | **0.0000** | **6,395.3152** | **6,395.3152** | **1.9466** | **0.0000** | **6,436.1930** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **73.89** | **0.00** | **66.13** | **74.46** | **0.00** | **62.16** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 2.2 Overall Operational

### Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

### Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 5/1/2019 | 5/31/2019 | 5 | 23 | |
| 2 | Grading | Grading | 6/3/2019 | 6/28/2019 | 5 | 20 | |
| 3 | Paving | Paving | 7/1/2019 | 7/31/2019 | 5 | 23 | |
| 4 | Operating | Grading | 8/1/2019 | 8/30/2019 | 5 | 22 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 50**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Site Preparation | Rubber Tired Dozers | 3 | 8.00 | 255 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 4 | 8.00 | 97 | 0.37 |
| Grading | Excavators | 2 | 8.00 | 162 | 0.38 |
| Grading | Graders | 1 | 8.00 | 174 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 255 | 0.40 |
| Grading | Scrapers | 2 | 8.00 | 361 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Paving | Pavers | 2 | 8.00 | 125 | 0.42 |
| Paving | Paving Equipment | 2 | 8.00 | 130 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Operating | Forklifts | 1 | 2.60 | 93 | 0.30 |
| Operating | Off-Highway Trucks | 1 | 2.60 | 275 | 0.57 |
| Operating | Other Material Handling Equipment | 1 | 2.60 | 580 | 0.59 |
| Operating | Other Material Handling Equipment | 1 | 2.60 | 260 | 0.59 |
| Operating | Other Material Handling Equipment | 1 | 2.60 | 139 | 0.59 |
| Operating | Rubber Tired Dozers | 7 | 2.60 | 235 | 0.59 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 7 | 18.00 | 0.00 | 0.00 | 19.80 | 7.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 8 | 20.00 | 0.00 | 0.00 | 19.80 | 7.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 19.80 | 7.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Operating | 12 | 30.00 | 0.00 | 0.00 | 19.80 | 7.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

Clean Paved Roads

### 3.2 Site Preparation - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 18.0663 | 0.0000 | 18.0663 | 9.9307 | 0.0000 | 9.9307 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.0188 | 42.5046 | 34.8088 | 0.0391 | | 2.1505 | 2.1505 | | 1.9784 | 1.9784 | | 3,876.7233 | 3,876.7233 | 1.2266 | | 3,902.4810 |
| **Total** | **4.0188** | **42.5046** | **34.8088** | **0.0391** | **18.0663** | **2.1505** | **20.2167** | **9.9307** | **1.9784** | **11.9091** | | **3,876.7233** | **3,876.7233** | **1.2266** | | **3,902.4810** |

## 3.2 Site Preparation - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0618 | 0.0927 | 1.1613 | 3.4100e-003 | 0.2709 | 2.0300e-003 | 0.2730 | 0.0719 | 1.8800e-003 | 0.0737 | | 255.6028 | 255.6028 | 0.0117 | | 255.8486 |
| **Total** | **0.0618** | **0.0927** | **1.1613** | **3.4100e-003** | **0.2709** | **2.0300e-003** | **0.2730** | **0.0719** | **1.8800e-003** | **0.0737** | | **255.6028** | **255.6028** | **0.0117** | | **255.8486** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 4.5166 | 0.0000 | 4.5166 | 2.4827 | 0.0000 | 2.4827 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.0188 | 42.5046 | 34.8088 | 0.0391 | | 2.1505 | 2.1505 | | 1.9784 | 1.9784 | 0.0000 | 3,876.7233 | 3,876.7233 | 1.2266 | | 3,902.4810 |
| **Total** | **4.0188** | **42.5046** | **34.8088** | **0.0391** | **4.5166** | **2.1505** | **6.6670** | **2.4827** | **1.9784** | **4.4611** | **0.0000** | **3,876.7233** | **3,876.7233** | **1.2266** | | **3,902.4810** |

## 3.2 Site Preparation - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0618 | 0.0927 | 1.1613 | 3.4100e-003 | 0.2709 | 2.0300e-003 | 0.2730 | 0.0719 | 1.8800e-003 | 0.0737 | | 255.6028 | 255.6028 | 0.0117 | | 255.8486 |
| **Total** | **0.0618** | **0.0927** | **1.1613** | **3.4100e-003** | **0.2709** | **2.0300e-003** | **0.2730** | **0.0719** | **1.8800e-003** | **0.0737** | | **255.6028** | **255.6028** | **0.0117** | | **255.8486** |

## 3.3 Grading - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 8.6733 | 0.0000 | 8.6733 | 3.5965 | 0.0000 | 3.5965 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.8912 | 54.1978 | 40.2888 | 0.0617 | | 2.5049 | 2.5049 | | 2.3045 | 2.3045 | | 6,111.3121 | 6,111.3121 | 1.9336 | | 6,151.9167 |
| **Total** | **4.8912** | **54.1978** | **40.2888** | **0.0617** | **8.6733** | **2.5049** | **11.1783** | **3.5965** | **2.3045** | **5.9010** | | **6,111.3121** | **6,111.3121** | **1.9336** | | **6,151.9167** |

## 3.3 Grading - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0687 | 0.1030 | 1.2903 | 3.7800e-003 | 0.3010 | 2.2600e-003 | 0.3033 | 0.0798 | 2.0900e-003 | 0.0819 | | 284.0031 | 284.0031 | 0.0130 | | 284.2762 |
| **Total** | **0.0687** | **0.1030** | **1.2903** | **3.7800e-003** | **0.3010** | **2.2600e-003** | **0.3033** | **0.0798** | **2.0900e-003** | **0.0819** | | **284.0031** | **284.0031** | **0.0130** | | **284.2762** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.1683 | 0.0000 | 2.1683 | 0.8991 | 0.0000 | 0.8991 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.8912 | 54.1978 | 40.2888 | 0.0617 | | 2.5049 | 2.5049 | | 2.3045 | 2.3045 | 0.0000 | 6,111.3121 | 6,111.3121 | 1.9336 | | 6,151.9167 |
| **Total** | **4.8912** | **54.1978** | **40.2888** | **0.0617** | **2.1683** | **2.5049** | **4.6733** | **0.8991** | **2.3045** | **3.2037** | **0.0000** | **6,111.3121** | **6,111.3121** | **1.9336** | | **6,151.9167** |

## 3.3 Grading - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0687 | 0.1030 | 1.2903 | 3.7800e-003 | 0.3010 | 2.2600e-003 | 0.3033 | 0.0798 | 2.0900e-003 | 0.0819 | | 284.0031 | 284.0031 | 0.0130 | | 284.2762 |
| **Total** | **0.0687** | **0.1030** | **1.2903** | **3.7800e-003** | **0.3010** | **2.2600e-003** | **0.3033** | **0.0798** | **2.0900e-003** | **0.0819** | | **284.0031** | **284.0031** | **0.0130** | | **284.2762** |

## 3.4 Paving - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.4259 | 14.9353 | 14.3652 | 0.0223 | | 0.8094 | 0.8094 | | 0.7447 | 0.7447 | | 2,208.9731 | 2,208.9731 | 0.6989 | | 2,223.6499 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.4259** | **14.9353** | **14.3652** | **0.0223** | | **0.8094** | **0.8094** | | **0.7447** | **0.7447** | | **2,208.9731** | **2,208.9731** | **0.6989** | | **2,223.6499** |

## 3.4 Paving - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0515 | 0.0773 | 0.9678 | 2.8400e-003 | 0.2258 | 1.6900e-003 | 0.2275 | 0.0599 | 1.5700e-003 | 0.0614 | | 213.0024 | 213.0024 | 9.7500e-003 | | 213.2072 |
| **Total** | **0.0515** | **0.0773** | **0.9678** | **2.8400e-003** | **0.2258** | **1.6900e-003** | **0.2275** | **0.0599** | **1.5700e-003** | **0.0614** | | **213.0024** | **213.0024** | **9.7500e-003** | | **213.2072** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.4259 | 14.9353 | 14.3652 | 0.0223 | | 0.8094 | 0.8094 | | 0.7447 | 0.7447 | 0.0000 | 2,208.9731 | 2,208.9731 | 0.6989 | | 2,223.6499 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **1.4259** | **14.9353** | **14.3652** | **0.0223** | | **0.8094** | **0.8094** | | **0.7447** | **0.7447** | **0.0000** | **2,208.9731** | **2,208.9731** | **0.6989** | | **2,223.6499** |

## 3.4 Paving - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0515 | 0.0773 | 0.9678 | 2.8400e-003 | 0.2258 | 1.6900e-003 | 0.2275 | 0.0599 | 1.5700e-003 | 0.0614 | | 213.0024 | 213.0024 | 9.7500e-003 | | 213.2072 |
| **Total** | **0.0515** | **0.0773** | **0.9678** | **2.8400e-003** | **0.2258** | **1.6900e-003** | **0.2275** | **0.0599** | **1.5700e-003** | **0.0614** | | **213.0024** | **213.0024** | **9.7500e-003** | | **213.2072** |

## 3.5 Operating - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 16.8818 | 0.0000 | 16.8818 | 7.8743 | 0.0000 | 7.8743 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.3278 | 45.9418 | 18.5400 | 0.0390 | | 2.2007 | 2.2007 | | 2.0247 | 2.0247 | | 3,861.9449 | 3,861.9449 | 1.2219 | | 3,887.6044 |
| **Total** | **4.3278** | **45.9418** | **18.5400** | **0.0390** | **16.8818** | **2.2007** | **19.0825** | **7.8743** | **2.0247** | **9.8990** | | **3,861.9449** | **3,861.9449** | **1.2219** | | **3,887.6044** |

## 3.5 Operating - 2019

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.1031 | 0.1545 | 1.9355 | 5.6800e-003 | 0.4516 | 3.3900e-003 | 0.4550 | 0.1197 | 3.1400e-003 | 0.1229 | | 426.0047 | 426.0047 | 0.0195 | | 426.4144 |
| **Total** | **0.1031** | **0.1545** | **1.9355** | **5.6800e-003** | **0.4516** | **3.3900e-003** | **0.4550** | **0.1197** | **3.1400e-003** | **0.1229** | | **426.0047** | **426.0047** | **0.0195** | | **426.4144** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 4.2204 | 0.0000 | 4.2204 | 1.9686 | 0.0000 | 1.9686 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.3278 | 45.9418 | 18.5400 | 0.0390 | | 2.2007 | 2.2007 | | 2.0247 | 2.0247 | 0.0000 | 3,861.9449 | 3,861.9449 | 1.2219 | | 3,887.6044 |
| **Total** | **4.3278** | **45.9418** | **18.5400** | **0.0390** | **4.2204** | **2.2007** | **6.4212** | **1.9686** | **2.0247** | **3.9932** | **0.0000** | **3,861.9449** | **3,861.9449** | **1.2219** | | **3,887.6044** |

### 3.5 Operating - 2019

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.1031 | 0.1545 | 1.9355 | 5.6800e-003 | 0.4516 | 3.3900e-003 | 0.4550 | 0.1197 | 3.1400e-003 | 0.1229 | | 426.0047 | 426.0047 | 0.0195 | | 426.4144 |
| **Total** | **0.1031** | **0.1545** | **1.9355** | **5.6800e-003** | **0.4516** | **3.3900e-003** | **0.4550** | **0.1197** | **3.1400e-003** | **0.1229** | | **426.0047** | **426.0047** | **0.0195** | | **426.4144** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |

### 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| General Heavy Industry | 0.00 | 0.00 | 0.00 | | |
| Total | 0.00 | 0.00 | 0.00 | | |

### 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| General Heavy Industry | 18.50 | 10.10 | 7.90 | 59.00 | 28.00 | 13.00 | 92 | 5 | 3 |

| LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.516610 | 0.060517 | 0.179979 | 0.140587 | 0.041566 | 0.006616 | 0.015092 | 0.027587 | 0.001923 | 0.002530 | 0.004314 | 0.000602 | 0.002075 |

### 4.4 Fleet Mix

## 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| General Heavy Industry | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| General Heavy Industry | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | | **0.0000** |

### 6.2 Area by SubCategory

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | | **0.0000** |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Vegetation