Los Angeles County
Department of Regional Planning

Planning for the Challenges Ahead

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Acting Director

September 28, 2017

TO: Supervisor Mark Ridley-Thomas, Chairman
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UPDATE REPORT ON BOARD MOTION REGARDING THE OIL AND GAS STRIKE TEAM FOR UNINCORPORATED LOS ANGELES COUNTY (MARCH 29, 2016 – AGENDA ITEM NO. 12)

On March 29, 2016, the Los Angeles County Board of Supervisors (Board) passed a motion instructing the Director of Regional Planning, in coordination with the Fire Chief, Interim Director of Public Health, and Director of Public Works to convene a Strike Team to assess the conditions, regulatory compliance and potential public health and safety risk associated with existing oil and gas facilities in unincorporated Los Angeles County. The Board instructed the Strike Team to report back on a biannual basis with a summary of its findings and any recommendations on legislative and regulatory positions that the Board should consider.

In accordance with the Board's motion, the Strike Team is submitting the third and final update report to the Board for existing oil and gas production facilities within the unincorporated Los Angeles County. This report includes facility findings, recommendations for the Board's consideration, and future efforts for the Strike Team. The report and the appendices can be accessed on the Department's web page at planning.lacounty.gov/oil-gas/strike.

The Strike Team held a public meeting on September 26, 2017, to discuss the third update report and to hear public comment. The Strike Team passed a motion to direct staff to file this report with the Board and to present to the Advisory Panel. The next Strike Team report is due to the Board no later than March 29, 2018.

Should you have any questions about this report, please contact Timothy Stapleton at (213) 974-6453 or tstapleton@planning.lacounty.gov.

DS:JS:DM:ts

Attachment: planning.lacounty.gov/assets/upl/project/oil-gas_20170926-report3.pdf

c: Executive Office, Board of Supervisors
County Counsel
Department of Public Works
Department of Public Health
Fire Department

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Oil and Gas Facility Compliance Review Project
Bi-Annual Report Number Three
County of Los Angeles Existing Oil Wells

September 26, 2017

Prepared for:
County of Los Angeles

Prepared by:
MRS Environmental (MRS)

Los Angeles Oil and Gas Strike Team
Oil and Gas Facility Compliance Review Project

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Executive Summary

On March 29, 2016, the Los Angeles County Board of Supervisors (Board) passed a motion instructing the Director of Regional Planning, in coordination with the Fire Chief, Interim Director of the Department of Public Health, and Director of the Department of Public Works, to convene a Strike Team to assess the conditions, regulatory compliance and potential public health and safety risk associated with existing oil and gas facilities in unincorporated Los Angeles County. The Board instructed the Strike Team to report back on a biannual basis with a summary of its findings and any recommendations on legislative and regulatory positions that the Board should consider. This report is the third of three biannual Strike Team update reports that will be provided to the Board during the current 18-month long Strike Team effort. The purpose of the Strike Team effort is to prioritize sites for further action based on health or environmental risks through onsite visits with consideration of nearby communities, age and history of the facility, and use of regulated well stimulation techniques.

This report is an enhanced update of the initial reports dated October 13, 2016, and March 13, 2017, and includes both the facilities examined in the first two reports, as well as review of the wells and facilities of seven additional oil and gas operators visited over the last few months including a public health screening assessment for each of the facilities visited through July 2017. This report also includes an overview from the first report of the initial Strike Team efforts, which focused on 1) updating the inventory of oil and gas facilities and 2) developing protocols to identify permit and compliance issues. For each facility inspected, this report includes a description of the existing facility, a description of existing conditions based on site visits, an analysis of permit compliance, recommendations for further action as appropriate, and the public health screening assessment. This third and final report also includes a review of regulatory, legislative, and other recommendations.

1.0 Background

This is the third and final report to update the Board of the Strike Team's current focus for the March 29, 2016, motion as summarized below. Additionally, it builds upon the Los Angeles County Oil and Gas Well Inventory Report, a report issued in December 2015 identifying existing facilities within unincorporated Los Angeles County, summarized below and attached as Appendix A. This third report is cumulative in its analysis: the findings made in the first two reports have been incorporated as information in this third iteration and built upon with updated information gathered from the Strike Team's most recent efforts.

1.1 Board Motion Regarding Proactive Planning and Enforcement of Oil and Gas Facilities Operating in Unincorporated Los Angeles County

On March 29, 2016, the Los Angeles County Board of Supervisors (Board) passed a motion to:

- Convene a Strike Team consisting of the Director of Regional Planning, the Director of Public Health, the Director of Public Works, and the Fire Chief to assess and report on a biannual basis the conditions, regulatory compliance and potential public health and safety risks associated with existing oil and gas facilities in unincorporated Los Angeles County.

- Review Los Angeles County Title 22: Zoning Code to ensure that oil and gas facilities may no longer operate by right in the unincorporated portion of the County and to ensure that regulations reflect best practices and current mitigation measures and technologies, minimize environmental impacts and protect sensitive uses and populations.
- Coordinate with cities throughout the County that are interested in collaborating on the development of regulatory requirements and protocols for monitoring and evaluating their local oil and gas facilities.
- Create an Advisory Panel consisting of independent experts in oil and gas exploration and production as appointed by the Board of Supervisors to assess the biannual reports of the Strike Team.
- Ensure that County Planning and Code Enforcement services are not negatively impacted.

1.2 Previous Reports

Los Angeles County Oil and Gas Well Inventory

On July 28, 2015, the Board directed the Department of Regional Planning (DRP), in consultation with the Department of Public Health (DPH), to develop a detailed inventory of all oil fields and the associated level of environmental monitoring of all oil wells currently operating within the unincorporated areas of the County of Los Angeles (County). MRS Environmental (MRS), a consulting firm with expertise in the oil and gas industry, along with County DRP Staff prepared the Los Angeles County Oil and Gas Well Inventory report dated December 2015 (attached as Appendix A), in response to the Board of Supervisors motion. The Oil and Gas Well Inventory report identifies facility and well locations based on information obtained from the State of California's Division of Oil, Gas, and Geothermal Resources' (DOGGR) oil and gas well online database. This database was used to provide a preliminary list of oil and gas wells located in the unincorporated Los Angeles County area. The report includes a review of local, State, and Federal regulatory requirements for the drilling and operating of oil and gas wells.

Inventory Report Recommendations

It was concluded in the Oil and Gas Well Inventory report that further research would be necessary to compare the existing County oil and gas well regulations with other agency regulatory standards to identify potential regulatory gaps. The comparison of these standards would allow for the review of County regulations, ensuring protections for the health, safety, and welfare of surrounding communities. It was recommended in the report that the standard conditions outlined in Title 22 and the suitability of "by-right" use of oil and gas wells within Title 22 be evaluated for effectiveness in protecting the health, safety and environment of the communities surrounding these operations. It was further recommended in the report that the well inventory be corroborated by on-the-ground site visits of oil and gas facilities to determine compliance and to review potential issues associated with health, safety, and environmental concerns.

Los Angeles County Oil and Gas Compliance First Report

The initial report submitted to the Board in October 2016 includes the findings from two facility visits and was primarily prepared to solicit feedback from the Advisory Panel, the Board, and the public on the field inspection checklists and the well inspection protocol developed. The comments and recommendations received were incorporated into the second and third reports. In addition, the

information obtained during the two facility visits detailed in the October 2016 report is included in this report.

Los Angeles County Oil and Gas Compliance Second Report

The second report submitted to the Board in March 2017 included the findings from six additional facility visits, utilized updated and improved field checklists and provided a screening public health assessment for all of the facilities presented in the first two reports. Members of the public and the Advisory Panel provided comments on the second report. Those comments have been addressed in this third and final report.

1.3 Project Objective

The objective of the Oil and Gas Facility Compliance Review Project (Project) is to provide a review of all existing oil and gas facilities in the unincorporated County to include:

- Identification of applicable regulations and permit requirements through a regulatory review and review of permit records;
- Verification of regulatory and permit compliance through site visits;
- Evaluation of regulatory compliance of facility plans (such as emergency response plans);
- Description and understanding of existing facility conditions and the neighboring zoning and nearby receptors; and
- Analysis of public health and safety risk.

The Project will enable the Board of Supervisors to update their understanding of the oil and gas facilities operating in the unincorporated County and the associated environmental protections and oversight provided by the various agencies tasked to monitor such facilities.

1.4 Project Scope

The Project scope includes review and assessment of all existing oil and gas production facilities in unincorporated Los Angeles County through site visits and review of permit records, description of existing facility conditions, evaluation of regulatory compliance, analysis of public health and safety risk and recommendations for further action. The scope does not include an evaluation of abandoned wells, a review of down-hole compliance issues (well testing and conditions of well bores below the surface of the ground) or ambient air monitoring beyond SCAQMD Rule 1173 monitoring (such as the installation of toxic air pollutant monitoring stations).

1.5 County Departments and Their Roles

County Departments involved in the Strike Team include the following:

- Regional Planning;
- Public Health;
- Public Works;
- Fire; and
- County Counsel.

The role of each of these is discussed below.

Department of Regional Planning (DRP)

The DRP is the lead County agency for this compliance review effort. DRP is responsible for the following components and tasks:

- the Director or his designee to attend Strike Team public meetings;
- Project management;
- hire and manage the consultant assisting the County;
- coordinate and facilitate staff meetings;
- coordinate and staff Advisory Panel and Strike Team meetings;
- research and collection of County permits, and ordinance and mapping data;
- coordinate information exchange between all involved agencies;
- develop the Well Inspection Protocol;
- develop the Facility Inspection Checklist;
- develop the Well Inspection Checklist;
- attend the field site audits;
- prepare field site audit findings; and
- prepare biannual reports.

Department of Public Health (DPH)

The DPH's role on the Strike Team includes:

- the Director or his designee to attend Strike Team public meetings;
- research and collection of DPH permits;
- research and collection of DPH issues, complaints, and enforcement actions;
- attend staff meetings;
- review and comment on Well Inspection Protocol;
- review and comment on Facility Inspection Checklist;
- review and comment on Well Inspection Checklist;
- review and comment on the Public Health and Safety Assessment Screening;
- attend the field site audits; and
- review and comment on draft reports.

Department of Public Works (DPW)

The DPW's role on the Strike Team includes:

- the Director or his designee to attend Strike Team public meetings;
- research and collection of DPW permits;
- research and collection of DPW issues, complaints, and enforcement actions;
- attend staff meetings;
- review and comment on Well Inspection Protocol;
- review and comment on Facility Inspection Checklist;
- review and comment on Well Inspection Checklist;

- attend the field site audits; and
- review and comment on draft reports.

County Fire Department (Fire)

The Fire Department's Fire Prevention Bureau/Petroleum Chemical Unit and the Health Hazardous Materials Division roles on the Strike Team includes:

- the Fire Chief or his designee to attend Strike Team public meetings;
- research and collection of fire prevention permits;
- research and collection of Certified Unified Program Agency-CUPA permits (hazardous materials, hazardous waste, above ground petroleum storage, and California Accidental Release Prevention Program-CalARP);
- research and collection of fire issues, complaints, and enforcement actions;
- attend staff meetings;
- review and comment on Well Inspection Protocol;
- review and comment on Facility Inspection Checklist;
- review and comment on Well Inspection Checklist;
- attend the field site audits; and
- review and comment on draft reports.

County Counsel

County Counsel provides the following assistance to the Strike Team:

- review of contract for consultant assisting the County;
- review and comment on Well Inspection Protocol;
- review and comment on Facility Inspection Checklist;
- review and comment on Well Inspection Checklist;
- attend staff meetings;
- attend Advisory Panel and Strike Team meetings;
- advise County on legal positions as necessary; and
- review and comment on draft reports.

Strike Team Members

The Strike Team is responsible for management of the Project and consists of the Department Heads, or their designated alternates, of the County agencies involved: DRP, DPH, DPW, and Fire.

Project Staff

The Project Staff consists of staff from MRS, the consultant assisting the County with the Project, and staff from DRP, DPH, DPW, and Fire. In addition, staff from the California Department of Conservation's Division of Oil, Gas and Geothermal Resources (DOGGR), the South Coast Air Quality Management District (SCAQMD), and Los Angeles Regional Water Quality Control Board (LARWQCB) have volunteered to assist the County in this effort.

Advisory Panel

The Advisory Panel consists of five members designated by each of the five-member Board of Supervisors. The Advisory Panel members are issue area experts in oil and gas, environmental, and/or

health issues. The Advisory Panel's role in the Project is to review, comment, and provide input on the Project findings and reports. The Advisory Panel consists of the following members:

- Julia May (1st District)
- Andrew Weissman (2nd District)
- Tim O'Connor (3rd District)
- Matt Rezvani (4th District)
- R. Rex Parris (5th District)

2.0 Progress Update

This section provides a summary of the Project activities completed through July 2017. Tasks completed include: three staff meetings, three Advisory Panel public meetings, two Strike Team public meetings, the development of an updated operator contact list, development of an inspection protocol, the development and update of inspection checklists, and the development of a public health screening checklist and screening health assessment. Site inspections have addressed, including the facility site inspections reviewed in the first two reports and additional operations reviewed through July 2017, a total of 557 of the 813 wells identified for Strike Team review. The wells not included are due to an inability to obtain access from the operator, a change in the status of a well (from active to abandoned, for example), or because of pending litigation. Section 3.16 provides a discussion on the wells not included for field inspections as part of the Project.

2.1 Chronology of Project Meetings

Project Staff Kick Off Meeting

The initial kick off meeting for the Project Staff occurred on June 30, 2016. The meeting was attended by representatives from DRP, DPH, DPW, and Fire with staff from County Counsel and the California Department of Conservation's DOGGR attending via teleconference. Staff from MRS also attended. Issues discussed at the kick off meeting are described below.

- Introduction of Project Staff – Staff from each participating County agency, DOGGR and MRS were introduced, and contact information was distributed.
- Purpose of the Project – The Board motion was discussed along with primary Project tasks.
- Timeline for first report – The first report would be issued as a draft in September 2016.
- Roles and responsibilities and regulatory authority – Project goals and agency responsibilities were discussed with each department or agency providing input on the process.
- Access to sites – The topics of site access and each department or agency's jurisdictional authority to visit the oil and gas facilities were discussed.

Second Project Staff Meeting

On August 18, 2016, the Project Staff met a second time, with the consultant MRS attending and with DOGGR staff attending via teleconference, to discuss Project progress. Items discussed are summarized below.

- Well inspection protocol – The well inspection protocol was discussed, and staff input on the document was received and incorporated.
- Facility inspection checklist – The facility inspection checklist was discussed, and staff input on the document was received and incorporated.
- Well inspection checklist – The well inspection checklist was discussed, and staff input on the document was received and incorporated.
- Completed site visits – It was stated that site visits to Matrix Sansinena and Termo Aliso Canyon/Oat Mountain had been completed.
- Summary of findings from completed site visits – Findings from the initial two site inspections were discussed, and methods for improving the site inspection process were discussed.
- First report to the Board outline – An outline for the first report was distributed and discussed.
- Potential legislative, regulatory, and legal position recommendations for the Board on overall safety of Project facilities – Subject input was discussed and noted for further discussion as the Project moves forward. It was agreed that it would be premature at the time of the meeting to make recommendations without completing additional site visits.
- Recommendations of other facilities for consideration of Strike Team evaluation – Facilities in adjacent jurisdictions were discussed, particularly those connected to facilities located in the County, pipelines, and other industrial facilities that use hazardous materials.

Advisory Panel Kick Off Public Meeting

The Advisory Panel kick-off meeting was held on August 31, 2016. Staff from the DRP facilitated the meeting with the assistance of County Counsel. Staff from MRS provided a Project overview and status update. Agenda items included:

- Project overview – Staff from DRP and MRS provided the Advisory Panel with an overview of the Project and an update on Project status.
- The role and responsibility of the Advisory Panel – Staff from DRP and County Counsel summarized the Advisory Panel tasks with the primary responsibility to review and comment on the Project reports.
- Brown Act responsibilities – County Counsel provided an overview of the Brown Act.
- Public comments – Comments were received from members of the public.
- Issues discussed from Advisory panel members and the public included:
    - abandoned and orphan wells;
    - odors and odor complaints;
    - methane emissions;
    - monitor for all toxics in air quality;
    - chemical use and transport, cradle-to-grave tracking of all chemicals;
    - noise, storm water, and truck traffic;
    - fracking;
    - fence line monitoring; and
    - water injection and water aquifer protection.

Strike Team Public Meeting

A Strike Team Public Meeting was held on October 13, 2016. The meeting was attended by the Directors, or their designee, of Regional Planning, Public Health, Public Works, the Fire Chief, and members of the public. The panel discussed and heard public comments on the first Oil and Gas Compliance Project Report. The panel made an affirmative motion to forward the report to the Board of Supervisors.

Second Advisory Panel Public Meeting

The Advisory Panel met for the second time on November 9, 2016. The Advisory Panel, consisting of appointees from the First, Second, and Fourth Supervisorial Districts, discussed and heard public comments on the first Oil and Gas Compliance Project Report. The Advisory Panel comments on the report were forwarded to the Board of Supervisors on November 16, 2016.

Third Project Staff Meeting

The Project Staff met for a third time on January 31, 2017. Staff discussed the preliminary findings prepared for the second Oil and Gas Compliance Project Report.

Second Strike Team Public Meeting

A Strike Team Public Meeting was held on March 13, 2017. The meeting was attended by the Directors, or their designee, of Regional Planning, Public Health, Public Works, the Fire Chief, and members of the public. The panel discussed and heard public comments on the second Oil and Gas Compliance Project Report. The panel made an affirmative motion to forward the report to the Board of Supervisors.

Third Advisory Panel Public Meeting

The Advisory Panel met for the third time on April 11, 2017. The Advisory Panel, consisting of appointees from the First, Third, and Fourth Supervisorial Districts, discussed and heard public comments on the first Oil and Gas Compliance Project Report. The Advisory Panel comments on the report were forwarded to the Board of Supervisors on April 13, 2017.

2.2 Operator Contact List/Operator Changes

As one of the first steps in the Project, Staff contacted some of the owners/operators of the oil and gas wells researched in the *Los Angeles County Oil and Gas Well Inventory Report*, included as Appendix A, to compile an initial contact list for this compliance review effort. Due to the dynamic nature of the oil and gas industry and the long operating life of an oil and gas well, it is common for multiple changes in ownership or operation of a well to occur over the lifetime of a production facility. In addition, regulatory agencies may take additional time to update their records and databases to reflect a change to the ownership or operation of a well. Current contact information for the owners/operators, with recent changes noted where applicable, for the Los Angeles County unincorporated portion of oil and gas well facilities in this study are listed below.

- Southern California Gas Company
  Centralized Correspondence
  P.O. Box 3150
  San Dimas, CA 91773
  Fields = Aliso Canyon, Honor Rancho, Playa Del Rey
  Total Wells = 160

- California Resources Corporation
  (Previous operator Vintage Production California LLC)
  CRC Long Beach
  111 W. Ocean Blvd., Suite 800
  Long Beach, CA, 90802
  Steve Greig, Director Government Affairs
  Fields = Del Valle, Newhall-Potrero, Honor Rancho, Wayside Canyon, Ramona, Ramona North
  Total Wells = 135
- Breitburn Operating L.P.
  707 Wilshire Boulevard, Suite 4600
  Los Angeles, California 90017
  Antonio D'Amico, Vice President
  Investor Relations & Government Affairs
  Fields = Rosecrans, Rosecrans South, Sawtelle
  Total Wells = 80
- Linn Operating, Inc.
  LINN Energy
  5201 Truxtun Avenue, Suite 100
  Bakersfield, CA 93309
  Trent R. Rosenlieb, P.E., Manager, Government & Regulatory Affairs
  Total Wells = 75
  Fields = Brea Olinda
- Brea Canon Oil Co.
  Brea Canon Oil Co., Inc.
  23903 Normandie Ave
  Harbor City, CA 90710
  Rey Javier, Vice President
  Total Wells = 66
  Fields = Torrance
- Crimson Resource Management Corp.
  5001 California Avenue, Suite 206
  Bakersfield, California 93309
  Kristine Boyer
  Total Wells = 52
  Fields = Hasley Canyon, Castaic Hills, Aliso Canyon
- The Termo Company
  3275 Cherry Avenue
  Long Beach, CA 90807
  Mailing Address:
  P.O. Box 2767
  Long Beach, CA 90801
  Ralph Combs Manager of Regulatory, Community, and Government Affairs

Total Wells = 47
Fields = Oak Mountain, Aliso Canyon, Oak Canyon

- Hawker Energy Inc
  (Previous operator TEG Oil and GAS USA Inc.)
  326 South Pacific Coast Highway, Suite 102
  Redondo Beach, CA 90277
  Total Wells = 37
  Fields = Tapia

- LBTH Inc.
  5574 Everglades St, # B
  Ventura, CA 93003
  Total Wells = 35
  Fields = Del Valle, Ramona

- Watt Mineral Holdings LLC
  2716 Ocean Park Blvd, Suite 2025
  Santa Monica, CA 90405
  Daniel Franchi, Director, Petroleum Operation
  Total Wells = 30
  Fields = Newhall, Placerita

- Matrix Oil
  (Previous operators Oxy USA Inc., California Resources Corporation)
  Matrix Oil
  104 West Anapamu Street
  Santa Barbara, CA 93101
  Cindy R. True
  Total Wells = 27
  Fields = Sansinena, Whittier

- Thompco, Inc.
  899 Mission Rock Road
  Santa Paula, CA 93060
  Dori Dawne Thompson
  Total Wells = 8
  Fields = Del Valle and Ramona

- Thompson Oil Company, Inc.
  13008 Santa Paula Ojai Road
  Santa Paula, CA 93060
  Dori Dawne Thompson
  Total Wells = 9
  Fields = Del Valle and Ramona

- Pacific Coast Energy Company
  (Breitburn Operating L.P. operates the wells)
  707 Wilshire Blvd., 46th Floor
  Los Angeles, CA 90017
  Total Wells = 4
  Field = Dominguez

- Power Run Oil
  721 N. Guadalupe Ave.
  Redondo Beach, California 90277
  Rodger S. Hunt
  Total Wells = 4
  Fields = Rosecrans South, Howard Townsite

- Asioco Inc.
  10801 National Boulevard #102
  Los Angeles, CA 90064-4140
  Steven Riva
  Total Wells = 2
  Fields = Rosecrans and Rosecrans South

- Sherwin D Yoelin
  808 Dolphin Circle
  Encinitas, CA 92024-2243
  Total Wells = 2
  Field = Rosecrans

- Anterra Services
  918 Mission Rock Rd Suite C-1
  Santa Paula, CA 93060-9134
  Mike Hale
  Total Wells = 2
  Field = Tapia

- Jean Martinez
  305 Kenneth Road
  Burbank, CA 91501
  Marla Martinez
  Total Wells = 1
  Field = Tapia

2.3 Well Inspection Protocol

As part of the compliance review Project, a guidance document was developed to streamline the process for regulatory and environmental review of County oil and gas facilities. This document, the

Well Inspection Protocol (Protocol), provides regulatory and field inspection guidance by issue area. The review issue areas are focused on existing DRP, DPH, DPW, DOGGR, and SCAQMD permit requirements and on regulatory requirements as specified in the DOGGR regulations related to surface facilities, in the EPA SPCC regulations, SCAQMD Rules, and Fire Department regulations and County Title 22 requirements. Issues detailed in the Protocol (see Appendices B through D) include:

- Adjacent land use;
- Air Quality;
- Bonding;
- Business Plans (hazardous materials);
- DOGGR critical wells designation and Idle Well Program;
- Drilling Activities;
- Emergency Response Plans;
- Fire Issues;
- Hazardous Materials;
- Noise Issues and Control;
- Odors history and potential;
- Oil field infrastructure;
- Oil field wastes;
- Permits;
- Pipeline operating and inspection characteristics;
- Roads;
- Sanitation;
- Secondary containment;
- Security;
- Setbacks;
- Signage;
- Spill Prevention, Control and Countermeasure (SPCC) Plans;
- Storm water basins;
- Sumps;
- Visual and aesthetics; and
- Zoning.

DRP Land Use Permits

The Protocol includes tools for review of the identified DRP land use permits for each facility, to be field-checked for compliance.

DRP Title 22

As acknowledged in the *Los Angeles County Oil and Gas Well Inventory Report* dated December 2015, many of the wells operating within unincorporated Los Angeles County do not have land use regulatory entitlements from the DRP. Pursuant to the County Zoning Ordinance, the primary land use regulations for oil wells are contained in Title 22, Section 22.24.120 D; the requirements for the A-2, Heavy Agriculture zone district. Therefore, to provide a baseline review for all facilities independent of the

existence or type of DRP permit, the Protocol provides that each facility be reviewed pursuant to the Title 22, Section 22.24.120 D requirements as part of the Project.

Other County Permits

County departments DPH, DPW, and Fire provided applicable permit documentation to the Project Staff; these requirements are compared with DRP permit requirements and are reviewed in the field for compliance. DPH records are reviewed for issues related to public nuisance such as noise and vibration complaints or negative health outcomes. DPW data are checked for recent building permits and are field checked against new development at the oil and gas facilities. Fire Department records are reviewed for compliance with all the requirements of the Fire Code.

Division of Oil, Gas, and Geothermal Resources (DOGGR)

DOGGR permits are typically limited to well down hole requirements. However, these permits are reviewed for consistency with County records and field verified.

South Coast Air Quality Management District (SCAQMD)

The SCAQMD has been invited to participate in the review process. In addition, staff has requested odor complaint data from the SCAQMD for each facility to identify any facilities that may have a history of odor complaints and could be considered a nuisance for the surrounding residents. SCAQMD Notices of Violation data has also been compiled for each facility. SCAQMD staff have participated in many of the site visits and conducted Rule 1173 air quality monitoring.

The Protocol is included as Appendix B.

2.4 Compliance Checklists

In order to facilitate documentation of Project findings in the field and to provide a consistent data base for the permit and compliance data collected for the Project, DRP, along with Project consultant MRS, developed checklist forms. The checklists provide a list of information and compliance items, organized by the issue areas identified in the Protocol, to be reviewed as part of the Project site visits. Two checklists were developed and implemented: one applicable to a facility or field as a whole (Facility Checklist) and one specific to a well or group of wells (Well Checklist). Each checklist is annotated with specific permit, land use, zoning, or other applicable information prior to the field verification compliance site visit.

Facility Checklist

The Facility Checklist covers the permit and compliance issues applicable to the overall facility or oil field including land use issues. Information was gathered on land use, zoning, nearby sensitive land uses, existing permits, and facility operations to determine regulatory compliance. The Facility Checklist documents 127 (where applicable) items reviewed during the facility site visit. Regulatory requirements associated with the facility are addressed, including DOGGR requirements, SCAQMD Rules, EPA SPCC requirements and Fire Department regulatory requirements. Appendix C provides details and specific regulatory references for each item under review. Regulatory issues are examined during the site visits as appropriate for each site. The adequacy of adherence to regulations and procedures that have been put in place to promote the protection of public health and safety and the environment are the focus of site visits. For example, the adequacy of a facility's spill plan and emergency response plan, in addition to issues that could increase the risk of releases or spills affecting the environment or the public, are

included in the checklist as focal items for review. Less emphasis is given to issues that would only affect employee health and safety, for example. General data collected and annotated on the Facility Checklist includes:

- Facility and surrounding area land use;
- Facility and surrounding area zoning;
- Location of closest residence;
- Location of closest school;
- Location of closest drainage or creek;
- DRP permits;
- DOGGR permits;
- SCAQMD Rules;
- County fire permits;
- Facility operational notes;
- Neighbor issues and complaint history; and
- All environmental issue area subjects identified in the Protocol.

Note that the Facility Checklist was updated from the one that was used in the first report to expand and clarify some items and to incorporate comments received. Also, as part of the site inspection, some items are included in the Facility Checklists that are not specifically addressed as part of a regulatory requirement but that constitute "good engineering practice", such as the use of berms at well sites or leak detection and alarm systems on pipelines. Note that the purpose of the checklists and the site visits is to gather information for future decision making. The Facility Checklist is included as Appendix C.

Well Checklist

The Well Checklist covers the permit and compliance issues applicable to an individual or group of wells. General data collected and annotated on the Well Checklist includes:

- Well identification;
- Well field;
- Well lease;
- DOGGR well status;
- Well status at time of field visit;
- Required signage;
- Fencing;
- Berms;
- SCAQMD Rule 1173;
- DOGGR critical wells and associated requirements; and
- Idle wells, idle well testing, and idle well history.

Note that the Well Checklist was updated from the one that was used in the first report to expand and clarify some items and to incorporate comments. The Well Checklist is included as Appendix D.

2.5 Public Health Screening Assessment

As noted in the first report for this Project, one component to be addressed as part of this effort is the assessment of the potential public health and safety risks associated with existing oil and gas facilities. Per the March 2016 Board motion, oil and gas facilities should "be prioritized for further action based on highest health or environmental risks" and "consideration should be given to the age and history of the facility, the proximity of nearby communities (specifically disadvantaged communities) or sensitive populations, and whether the facility is operating using controversial well stimulation techniques (such as hydraulic fracking)." For this report, the environmental, public health and safety issues have been included in the Facility and Well Checklists and then compiled into a separate checklist summary, which was used to screen facilities for additional assessment or review. The public health, safety and environmental risks are based primarily on a well or facility's proximity to populations; the presence of high hydrogen sulfide gas in production; the operating pressures of subject wells and equipment and the frequency of 24-hour per day drilling activities (both historical and projected). Environmental risks are based on a well or facility's proximity to creeks and waterbodies and on the presence of berms and free-flowing wells. The findings made as a result of conducting the public health screening assessment are included in Section 3.0 for each oil and gas facility visited for this Project to date. The Public Health Screening Checklists are included in Appendix E.

3.0 Facilities Inspected

Two facilities were reviewed in the first report:

- Matrix Sansinena.
- Termo Aliso Canyon and Oat Mountain.

The second report included review of the following additional facilities, owned by six operators, assessed as part of the Project through January 2017:

- Termo – Oak Canyon Field.
- Linn Energy – Brea Olinda Field.
- California Resources Company – Del Valle, Newhall-Potrero, Honor Rancho, Wayside Canyon, Ramona, and Ramona North Fields.
- Crimson Resource Management Company – Hasley Canyon, Castaic Hills, and Aliso Canyon Fields.
- Brea Canon Oil Company – Torrance Field.
- Breitburn Operating L.P. – Rosecrans, and Rosecrans South Fields.

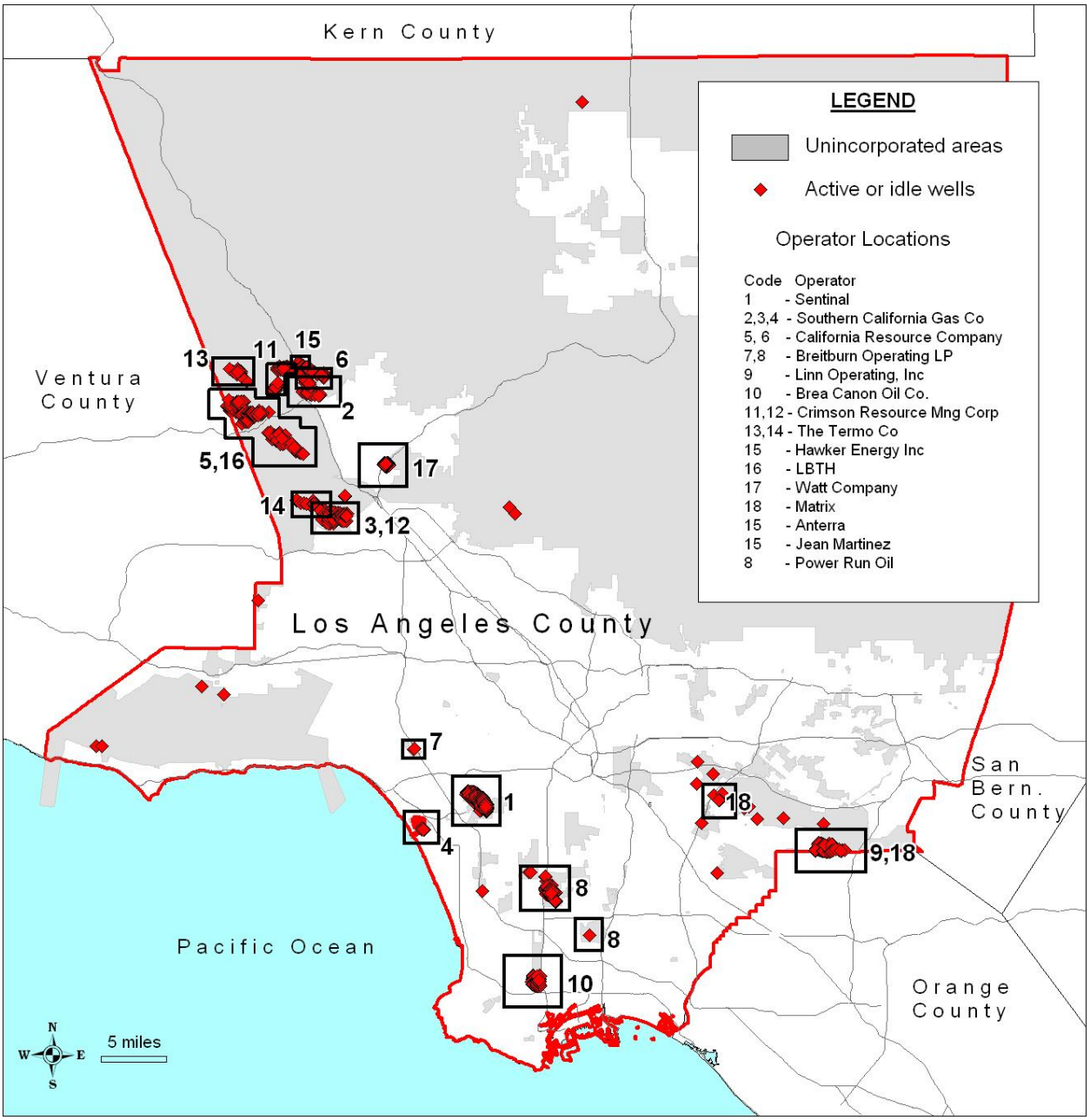
This third and final report includes seven operations as visited as part of the Project through July 2017.

- Watt Companies – Newhall and Placerita Fields.
- Matrix Whittier – Whittier Field.
- Breitburn Sawtelle and Dominguez – Sawtelle and Dominquez Fields.
- LBTH – Dell Valle and Ramona Fields.
- Anterra – Tapia Field.

- Jean Martinez – Tapia Field.
- Power Run Oil – Rosecrans South and Howard Townsite Fields.

The following sections include findings from the Strike Team field visits and facility review through July 2017. See Figure 1 for a County-wide map of the oil field locations.

Figure 1 – Oil Field Locations



3.1 Matrix Sansinena

The Matrix Sansinena facility was inspected on August 9, 2016. Staff from County DRP, DPH, DPW, and Fire along with the County consultant attended the inspection; a list of attendees is included in Appendix F. The Matrix Sansinena site was selected as one of the initial sites for review due to its proximity to residences and its operational potential for affecting the surrounding community.

Facility Description

The Matrix Sansinena facility consists of 13 electrically powered wells and a three-phase emulsion pipeline to an offsite production area known as Site 8 located at 2342 Rancho Drive in the City of La Habra Heights. The facility does not contain any storage tanks, flares, or any processing equipment. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4. The wells have been idle for approximately one year, and the facility is not currently operational. The facility recently changed ownership from CRC to Matrix, and the new company is preparing to bring the facility back into production. The tables below provide summaries of key information for the Matrix Sansinena facility. Figure 2 provides an aerial view of the facility.

Matrix Sansinena Well Overview	
Operator	Matrix Oil
Current Zoning	A-1-5 Light Agricultural
Number of Wells	13 (DOGGR)
Fields	Sansinena
Leases	Sansinena
DOGGR District (s)	1
DOGGR Operator Code	O2475
DRP Permit	ZEC 965 issued 1952

Matrix Sansinena Adjacent Land Use Overview			
	Zoning	**Land Use**	**Notes**
North	A-1-5	Agricultural	Commercial nursery
South	R-A-2000	Residential, SCE	SCE facility
East	A-1-5	SCE	SCE facility
West	RA	Residential	City of La Habra Heights
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Well Status**
Closest Residence	181	Well	Site is inactive
Closest School	750	Well	Site is inactive
Closest Drainage	300	Well	Site is inactive

Figure 2 – Matrix Sansinena Site 9 Aerial

Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on August 9, 2016; items of note are listed in the table below:

Matrix Sansinena Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Setbacks	SB.2	Wells are within setback distance identified by DOGGR for critical wells.	DOGGR has not made a determination on critical wells status designation. All wells currently idle. Critical wells require additional safety measures and equipment, recommend DOGGR review prior to facility re-start.
Security	S.3	Outer fence does not have DOGGR required 3 barbed wires at top of fence.	There are 3 barbed wires at the top of the inner fence, but the inner fence does not completely encircle facility. Access to the facility is not limited by DOGGR compliant fencing. Recommend operator review of facility fencing prior to facility re-start.

Matrix Sansinena Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Secondary Containment	SC.3	Berms and storm water sumps may not be sufficient to contain large release.	Not all areas are protected by berms and containment. Large release unlikely because facility does not have tanks or pressure vessels, wells have individual cellars. Recommend operator review of berms prior to facility re-start.
Emergency Response Plan	ER.2	Emergency Response Plan (ERP)	This review item, incomplete from the first report, has been submitted and reviewed. No further action is required.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	It is recommended that well work requirements be documented in a well work procedure and should include: 1) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 2) requirements for proper drilling mud disposal and storage; 3) limits on time-of-day deliveries to well sites; and 4) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.

Additional follow-up will be necessary once the facility becomes operational and once the required plans are updated, submitted and reviewed.

As mentioned above, this facility is a production facility that transports all products to a separate facility for separation, processing and transportation to refineries. The processing facilities, although integral to the overall production of oil and gas from the Matrix Sansinena facility, are located and regulated in the City of La Habra Heights outside of the County's unincorporated area. A complete evaluation of the overall operation, once the Sansinena facility restarts production, should include a review of the processing and transportation facilities located within the City of La Habra Heights.

Checklists, along with other data for the Matrix Sansinena facility, are included in Appendix F. The table below provides a summary of County land use permits.

Matrix Sansinena Land Use Permit(s) Summary			
County DRP Permit	**Number of Conditions**	**Number in Compliance**	**Compliance Notes**
ZEC 965	5	5	Permit condition #1 includes Title 22 requirements by reference. Permit condition #2 not required per 1/20/53 Office of County Engineer and Surveyor letter. Permit condition #5 not applicable as facility does not contain permit specific infrastructure.
Title 22	14	14	No issues noted.

*DRP land use permit conditions total for environmental or safety permit conditions, non-administrative.

Other Agency Historical Issues and Findings

Information from other regulatory agencies as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit are summarized in this section. Research on the SCAQMD web site for Matrix Sansinena, Facility ID 182930, did not result in any Notice of Violation (NOV) or Notice to Comply (NTC) documentation for the previous 10-year time period.

Matrix Sansinena Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Sansinena Facility ID 182930	None	-
DOGGR	Sansinena	None received	-

Health Screen Summary

Matrix operates 13 wells located at this site within the jurisdiction of the County. The processing facility is located within the City of La Habra Heights. Of the high priority public health risk items, the facilities rank as a high public health risk for one of the four items. This particular item is related to the facilities' proximity to sensitive receptors for the wells, where wells are located less than 100 feet from nursery employee areas and 180 feet from homes. For the remaining areas, including high pressures, hydrogen sulfide and historical drilling activities, public health risk levels are low. Spill risks are low as no pipelines or wells are located immediately adjacent to waterways, and the site area is bermed (although some berms require review as per findings table above). The Public Health Screening Checklist is included in Appendix F.

Photographs

Photographs are included on the following pages of this section.

Matrix Sansinena – Fencing and Landscape Screening

Matrix Sansinena – Well Pad Area and Adjacent Residential Use

Matrix Sansinena – Idle Wells

Matrix Sansinena – Wells

Matrix Sansinena – Well 9A 12

Matrix Sansinena – Well Pad Area

3.2 Termo Aliso Canyon and Oat Mountain

The Termo Aliso Canyon and Oat Mountain facilities were inspected on August 16, 2016. Staff from County DRP, DPW, and Fire along with MRS attended the inspection; a list of attendees is included in Appendix G. The Termo Aliso Canyon and Oat Mountain facilities were selected as part of the first report due to the proximity of the facilities to the Gas Company's Aliso Canyon Gas Storage Facility and the County's familiarity with the site.

Facility Description

The Termo Aliso Canyon and Oat Mountain facilities consist of 24 total oil wells, two tank farm/processing locations, and associated pipelines; pipelines include oil, gas and injection lines and range in diameter from two to three inches. The pipelines transport the well production to one of the two tank farm facilities where the oil and water are separated with the use of various tanks and heater treater vessels. The dehydrated oil is stored in stock tanks prior to shipping to market by tanker truck. The produced water is stored in tanks and is then either re-injected back into the producing formation via a water injection well or transported by pipeline to the adjacent Southern California Gas Company facility. The produced gas is dehydrated by gas scrubbers and transported via an existing pipeline to the Southern California Gas Company facility. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

The tables below provide summaries of key information for the Termo Aliso Canyon and Oat Mountain facilities. Figure 3 provides an aerial view of the facilities.

Termo Aliso Canyon and Oat Mountain Overview	
Operator	The Termo Company
Current Zoning	A-2 Heavy Agricultural
Number of Wells	24 (DOGGR)
Fields	Oak Mountain Aliso Canyon
Leases	Del Aliso Del Aliso 1 Gardett Oat Mountain Orcutt Roosa
DOGGR District (s)	2
DOGGR Operator Code	T1200
DRP Permit	RPP 200602106 issued 2006

Termo Aliso Canyon and Oat Mountain Adjacent Land Use Overview			
	Zoning	**Land Use**	**Notes**
North	A-2	Oil & Gas, Open Space	Telecommunication towers along ridge lines
South	A-2	Oil & Gas, Open Space	
East	A-2	Oil & Gas, Open	

Termo Aliso Canyon and Oat Mountain Adjacent Land Use Overview			
		Space	
West	A-2	Oil & Gas, Open Space	
Sensitive Land Uses			
	Distance (feet)	**Notes**	
Closest Residence	6,336		
Closest School	8,741	Porter Ranch Community School	
Closest Drainage	Topography along ridgeline with multiple drainages		

Figure 3 – Termo Aliso Canyon and Oat Mountain Aerial

Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on August 16, 2016; items of note are listed in the table below:

Termo Aliso Canyon and Oat Mountain Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Signage	SG.2	A vessel at well pad site should be labeled	Recommend that the gas separation vessel at Oat Mountain Del Aliso Well 1-4 pad site be appropriately labeled.
Bonding	B.1 thru B.3	Bonding information	This review item, incomplete from the first report has been submitted and reviewed, no further action is required.
Secondary Containment	SC.4	Dikes/berms	Maintenance on existing and new installation of berms for all well cellar areas was underway at the date of the site inspection. No further action is recommended.
Fire	F.5	Flow tests for fire hydrants	This review item, incomplete from the first report has been submitted and reviewed, no further action is required.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there is a number of requirements that should be followed if drilling were to occur.	It is recommended that well work requirements be documented in a well work procedure and should include: 1) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 2) requirements for proper drilling mud disposal and storage; 3) limits on time-of-day deliveries to well sites; and 4) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.

Checklists, along with other data for the Termo facilities, are included in Appendix G. County DRP permits for the Termo wells are listed in the table below.

Termo Field Land Use Permit(s)					
Permit Type	**Permit Year**	**Permit Number**	**APNs Linked to Permit**	**Number of Wells On Permit**	**Number of Wells on APNs in DOGGR Data Base**
RPP	2006	200602106	2826017040	1	3

Other Agency Historical Issues and Findings

Information from other regulatory agencies as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit are summarized in the table below. SCAQMD data, Notice of Violations (NOV) and Notice to Comply (NTC) data is from the SCAQMD FIND website for the previous 10-year data period. DOGGR data is as supplied by DOGGR to the Strike Team as of February 2017.

Termo Aliso Canyon and Oat Mountain Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Aliso Canyon, Facility ID 83508	5 NOVs	Corrected, in compliance
SCAQMD	Oat Mountain, Facility ID 97081	6 NOVs and 5 NTCs	Corrected, in compliance
DOGGR	Oat Mountain	Deficiency letter, 4 items	Pending

Health Screen Summary

Termo operates 24 wells located at these sites within the jurisdiction of the County. The gas processing facility is located at the adjacent Gas Company facility. Oil is stored and shipped by truck. There are only onsite oil pipelines. Of the high priority public health risk items, the facilities rank as a low public health risk for all of the items. This is due to the remoteness of facilities to sensitive receptors for the wells and the absence of high pressures, hydrogen sulfide and the type of drilling activities at the sites. Spill risks are low as wells are not free flowing, no wells are located immediately adjacent to waterways, and the tank site areas are bermed. The Public Health Screening Checklist is included in Appendix G.

Photographs

Photographs are included on the following pages of this section.

Termo Facilities – Main Gate (Southern California Gas Company)

Termo Aliso Canyon – Well, Pump Enclosure, and Well Cellar Secondary Containment

Termo Aliso Canyon – Process Treatment Vessel

Termo Aliso Canyon – Tank Farm

Termo Aliso Canyon – Tank Farm and Loading Rack

Termo Oat Mountain – Well and Adjacent Land Use Telecommunications

Termo Oat Mountain – Process Treatment Vessels

Termo Oat Mountain – Tank Farm

3.3 Termo Oak Canyon

The Termo Oak Canyon facilities were inspected on December 6, 2016. Staff from County DRP, DPW, and DPH along with the SCAQMD and MRS attended the inspection; a list of attendees is included in Appendix H.

Facility Description

The Termo Oak Canyon facilities consist of 23 total oil wells, a gas cogeneration facility, a tank farm, a waste water facility, and associated pipelines; pipelines include oil, gas and injection lines and range in diameter from two to three inches. The gas cogeneration facility and tank farm are sited in different locations. The pipelines transport the well production to the tank farm facility where the oil and water are separated, some oil/water separation occurs at well heads. The dehydrated oil is stored in stock tanks prior to shipping to market by tanker truck. The produced water is stored in tanks, transferred to the waste water facility, and then re-injected back into the producing formation via a water injection well for water flood enhanced recovery. The produced gas is dehydrated by gas scrubbers and used to fuel the cogeneration system. The facility does not have a flare. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

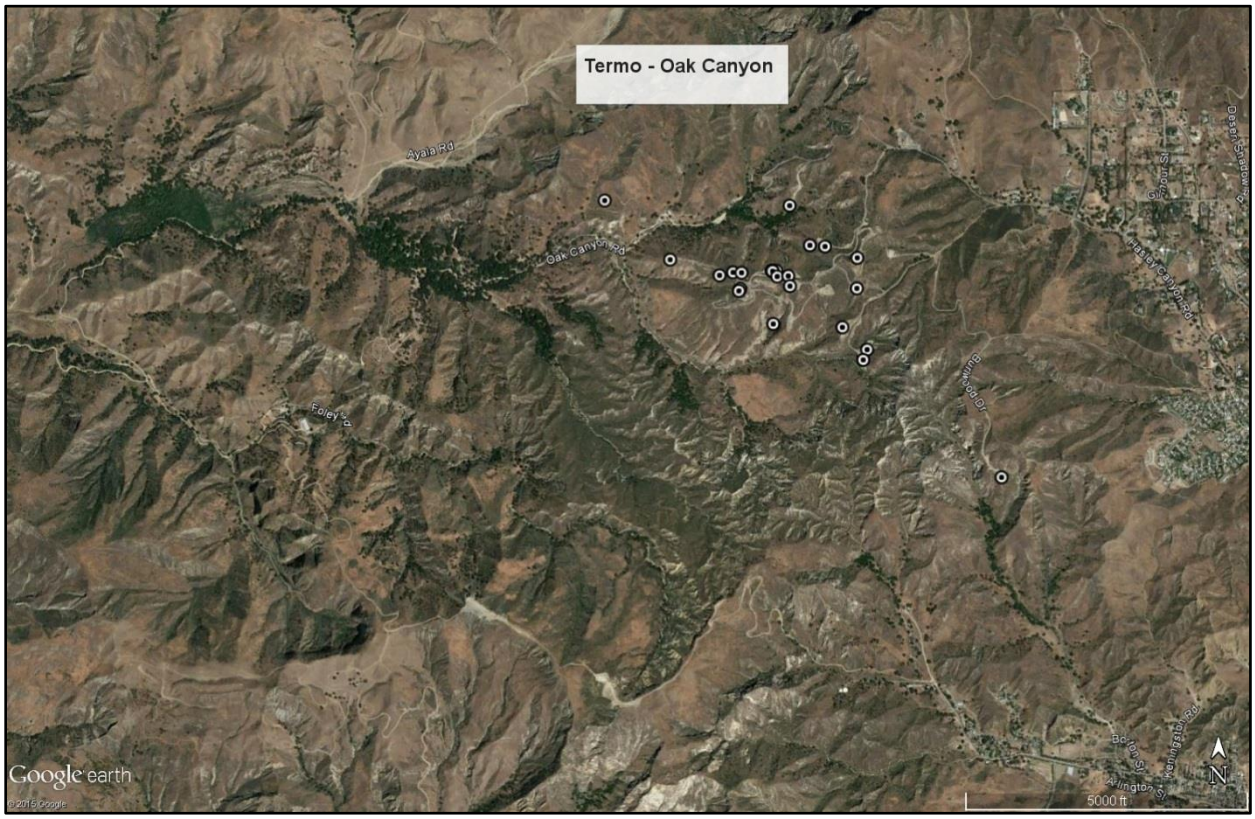
The tables below provide summaries of key information for the Termo Oak Canyon facilities. Figure 4 provides an aerial view of the facilities.

Termo Oak Canyon Overview	
Operator	The Termo Company
Current Zoning	A-2 Heavy Agricultural
Number of Wells	23 (DOGGR)
Fields	Oak Canyon
Leases	L.W. Gilmour Fee Rosann USL-F USL-G USL-H W. E. Stevens B
DOGGR District (s)	2
DOGGR Operator Code	T1200
DRP Permit	None

Termo Oak Canyon Adjacent Land Use Overview			
	Zoning	**Land Use**	**Notes**
North	A-2-2	Vacant	
South	A-2-2	Vacant	
East	A-2-2	Vacant, single family residential	
West	A-2-2	Vacant, single family residential	
Sensitive Land Uses			

Termo Oak Canyon Adjacent Land Use Overview			
	Distance (feet)	**Well/Tank**	**Well Status**
Closest Residence	1,895	Well Roseann 1	Idle
Closest School	12,182	Well Roseann 1	Idle
Closest Drainage	Field topography is hilly with multiple drainages.		

Figure 4 – Termo Oak Canyon Aerial



Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on December 6, 2016; items of note are listed in the table below.

Termo Oak Canyon Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	It is recommended that well work requirements be documented in a well work procedure and should include: 1) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 2) requirements for proper drilling mud disposal and storage; 3) limits on time-of-day deliveries to well sites; and 4) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.

Checklists, along with other data for the Termo facilities, are included in Appendix H. The only DRP permit found relating to the Termo facilities is related to the Oat Mountain wells. See Section 3.2.

Other Agency Historical Issues and Findings

Information from other regulatory agencies, as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit, are summarized in the table below. SCAQMD data, Notice of Violations (NOV) and Notice to Comply (NTC) data is from the SCAQMD FIND website for the previous 10-year data period. DOGGR data is as supplied by DOGGR to the Strike Team as of February 2017.

Termo Oat Canyon Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Oak Canyon, Facility ID 83509	1 NTC	Corrected, in compliance
DOGGR	No documents received to date		

Health Screen Summary

Termo operates 23 wells located at this site within the jurisdiction of the County. The gas processing and cogeneration area is located onsite. Oil is stored and subsequently transported by truck, no oil or gas is transported by pipeline. The facilities rank as a low public health risk for all of the high priority public health risk items. This is due to the remoteness of the facilities to sensitive receptors and the absence of high pressures, absence of hydrogen sulfide and the type of historical drilling activities. Spill risks are low as wells are not free flowing, no wells are located immediately adjacent to waterways, and the tank site and well areas are bermed. The Public Health Screening Checklist is included in Appendix H.

Photographs

Photographs are included on the following pages of this section.

Termo Oak Canyon – Gas Plant/Cogeneration Facility

Termo Oak Canyon – Tank Battery

Termo Oak Canyon – Well

Termo Oak Canyon – Well

3.4 Linn Energy

The Linn Energy facilities were inspected on September 15, 2016. Staff from County DRP, DPW, DPH, Fire along with DOGGR staff and MRS attended the inspection; a list of attendees is included in Appendix I.

Facility Description

The Linn Energy Brea Olinda Field facility consists of 7 active wells, 58 idle wells, 10 plugged and abandoned wells, one emulsion storage tank, and a 3-phase emulsion pipeline to an offsite production facility. The offsite production facility, the Brea Canon Production Facility, is located in Orange County. The field does have a tank farm with a single, 2,400 bbl emulsion tank, in use with a level controller that controls a pump. Emulsion is pumped through a single pipeline to the processing facility offsite in Orange County (Brea Canon Production Facility). Produced gas is transferred via pipeline to the Stearns Gas Plant also located in Orange County. All active wells are powered by electricity and have fencing around the pump jack and dirt berm tertiary containment around the well cellars. The Field does not have any flares or any processing equipment located within the jurisdiction of Los Angeles County. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4. Linn Energy has an active plug and abandonment program with 10 plug and abandonment well operations completed and approximately 10 idle wells scheduled for plug and abandonment per year. The tables below provide summaries of key information for the Brea Olinda Field facility.

The tables below provide summaries of key information for the Linn Energy facility. Figure 5 provides an aerial view of the facilities.

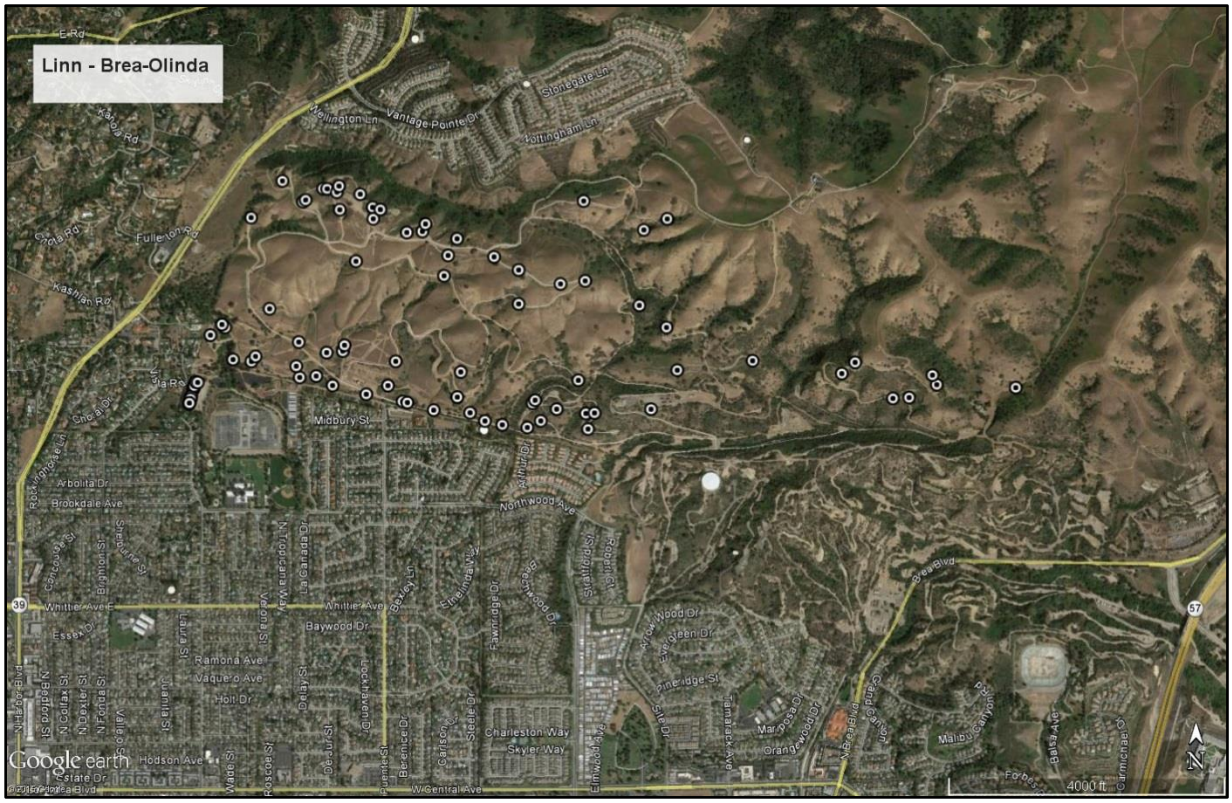
Linn Energy Overview	
Operator	Linn Energy
Current Zoning	A-1.5 Agricultural
Number of Wells	75 (DOGGR)
Fields	Brea Olinda
Leases	Grazide-Fisher Puente Puente-Orange Rowland Grazide Orange-Rowland Orange-Grazide Menchego-Fisher
DOGGR District (s)	1
DOGGR Operator Code	L2025
DRP Permit	ZEC 216 Issued 1949

Linn Energy Brea Olinda Field Adjacent Land Use Overview			
	Zoning	**Land Use**	**Notes**
North	RPD-1.5U O-S A-1.5 A-1-15000	Oil and Gas Open Space Residential	Unincorporated LA County

Linn Energy Brea Olinda Field Adjacent Land Use Overview			
	A-1-1		
South	A1 R1 A-1-5	Residential	Unincorporated Orange County (A1) City of Brea (R-1) Unincorporated LA County (A-1-5)
East	A-1-5 A-2-1	Oil and Gas Open Space	Unincorporated LA County
West	RA RA-SPO OS-C	Residential	City of La Habra Heights

Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Well Status**
Closest Residence	236	C-14	Active
	245	C-13	Active
	316	Tank	NA
Closest School	1,833	C-14	Active
Closest Drainage	Field topography is hilly with multiple drainages.		

Figure 5 – Linn Energy Aerial



Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on September 15, 2016; items of note are listed in the table below.

Linn Energy Brea Olinda Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Oil Field Waste	FW.4	Some scrap metal and concrete is located throughout the field; however, the material does not belong to operator.	Although the material does not belong to the current operator of the wells and does not produce a significant visibility or aesthetic impact, it is recommended that the operator work with the responsible party to remove the materials as feasible.
Fire Department Oversight	HM.1 F.2	The Orange County Fire Department oversees the Brea-Olinda Oil Field because the majority of the field is located in Orange County.	It is recommended that LA County Fire continue to coordinate with Orange County Fire via the existing AHJ (Authority Having Jurisdiction) Agreement on the oversight of the Brea-Olinda Oil Field.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	It is recommended that well work requirements be documented in a well work procedure and should include: 1) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod

Linn Energy Brea Olinda Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
			replacement activities; 2) requirements for proper drilling mud disposal and storage; 3) limits on time-of-day deliveries to well sites; and 4) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.

As discussed above, with seven active producing wells, the oil field's production is transported to a separate facility located in Orange County for processing.

County DRP permits for the Linn Energy Brea wells are listed in the table below.

Linn Energy Brea Olinda Field Land Use Permit(s)					
Permit Type	**Permit Year**	**Permit Number**	**APNs Linked to Permit**	**Number of Wells On Permit**	**Number of Wells on APNs in DOGGR Data Base**
ZEC	1949	216	8269081001 8269081002	Not Noted	8

Checklists, along with other data for the Linn Energy facilities, are included in Appendix I.

Other Agency Historical Issues and Findings

Information from other regulatory agencies, as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit, are summarized in the table below. SCAQMD data, Notice of Violations (NOV) and Notice to comply (NTC) data is from the SCAQMD FIND website for the previous 10-year data period. DOGGR data is as supplied by DOGGR to the Strike Team as of February 2017.

Linn Brea Olinda Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Linn Brea Olinda, Facility ID 151415	1 NTC	Corrected, in compliance
DOGGR	No documents received to date		

Health Screen Summary

Linn Energy operates 75 wells from this site within the jurisdiction of the County. The processing facility is located within Orange County, with some emulsion tank storage in Los Angeles County. Of the high priority public health risk items, the facilities rank as a high public health risk for one of the four items. This particular item is related to the facilities' proximity to sensitive receptors for some well pads, where some wells are located less than 100 feet from a nursery employee area and less than 250 feet from homes. For the remaining areas, including high pressures, hydrogen sulfide and historical drilling activities, public health risk levels are low. Spill risks are considered to be medium as some wells and

pipelines are located immediately adjacent to waterways, yet none of the wells are free flowing. The Public Health Screening Checklist is included in Appendix I.

Photographs

Photographs are included on the following pages of this section.

Linn Energy Brea Olinda – Well

Linn Energy Brea Olinda – Well

Linn Energy Brea Olinda – Tank Farm

Linn Energy Brea Olinda – Nearby Homes

Linn Energy Brea Olinda – Abandoned Well Marker

Linn Energy Brea Olinda – Tank Farm

3.5 California Resources Company (CRC)

The CRC operates in six oil fields within unincorporated Los Angeles County: Del Valle, Newhall-Potrero, Honor Rancho, Wayside Canyon, Ramona, and North Ramona. These fields were divided into three groups (i.e., two fields per group), each group being inspected by the Strike Team on separate dates: October 18, 2016 (Newhall-Potrero), November 1, 2016 (Del Valle and Ramona), and December 6, 2016 (Honor Rancho and Wayside Canyon). Staff from County DRP, DPH, DPW, and Fire along with DOGGR and SCAQMD staff and the County consultant attended the inspections; a list of attendees for each inspection is included in Appendix J.

Facility Description

The CRC wells can be grouped into three main geographic areas with separate processing facilities consistent with the site inspection schedule noted above and as described below.

Newhall-Potrero Fields (Ferguson and Rancho San Francisco Wells)

These fields contain a total of 38 active and 9 idle wells, the Ferguson Tank Battery, the Ferguson Gas Plant, pipelines, and a truck loading rack. Produced oil is transported from the well heads to the Ferguson Tank Battery, where the water is removed and the oil transported off-site via tanker truck. Produced water is injected back into the reservoir with a water disposal injection well; the fields do not utilize water flood recovery methods. Produced gas is gathered at the Ferguson Gas Plant where it is processed and sold via pipeline to the Gas Company. The Ferguson Tank Battery and Gas Plant operate with a vapor recovery system that goes to a flare during upset conditions. The flare was operating on the Strike Team inspection day. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

The operator informed staff that much of the property within the Newhall-Potrero Fields is used as temporary filming sets for movies, commercials, and television shows. Staff noted that structures and prepared scenes, as identified by the operator, are used for this purpose.

Del Valle and Ramona Fields (Barnes, N.L.F., Lincoln, Kern, Orduno, Langdon, and Ramona Wells)

These fields contain a total of 39 active wells and 24 inactive wells, the Kern Tank Farm, the Barnes Tank Farm, the N.L.F. Tank Farm, and truck loading racks at each tank farm. Produced oil is de-watered at each tank farm and is transported off-site via tanker truck. Produced water is re-injected back into the reservoir with a water disposal injection well; the fields do not utilize water flood recovery methods. Produced gas is transported by pipeline to the Santa Clara Gas Plant located in Ventura County; no gas treatment occurs on these CRC sites. All storage tanks and truck loading racks operate with a vapor recovery system tied to a vapor recovery compressor and the gas system. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

The Los Angeles County Fire Del Valle Training Center is located on the same parcel, APN 3271003900, as some of the Del Valle wells.

Honor Rancho and Wayside Fields

The Honor Rancho and Wayside fields contain a total of 17 active and 8 idle wells, the Honor Ranch Tank Battery, the Wayside Tank Battery, a truck loading rack, and a flare. All produced oil and gas goes to the Honor Ranch tank facility, the Wayside Tank facility is not in service and contains two out-of-service tanks. Produced oil is de-watered on-site and transported via tanker truck; the loading rack has a vapor recovery system. All produced gas is flared except for some that is used as make-up gas for the vapor recovery system. Produced water is re-injected back into the reservoir with a water disposal injection well; the fields do not utilize water flood recovery methods. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

These wells and facilities are located on County-owned property that also houses the Pitchess Detention Center North, a Los Angeles County Sheriff Department medium-security jail.

The tables below provide summaries of key information for the CRC facilities. Figures 6 and 7 provide an aerial view of the facilities.

CRC Fields Well Overview	
Operator	California Resources Company
Number of Wells	135
Current Zoning	A-2 Heavy Agricultural (78) R-1 Single Family Residence (4) OS Open Space (1) SP Specific Plan (52)
Fields	Del Valle Newhall-Potrero Honor Rancho Wayside Canyon Ramona Ramona, North
Leases	Barnes Ferguson Honor Rancho 'A' (NCT-1) Honor Rancho 'A' (NCT-2) Kern Langdon Lincoln N. L. & F. North Ramona Orduno Rancho San Francisco Wayside Canyon Unit
DOGGR District (s)	2
DOGGR Operator Code	V1370
DRP Permit	RPP201000886 RPP201301090 RPP201200350

* Well number may not match well total due to multiple zoning or revised APNs.

CRC Newhall and Potrero Field Adjacent Land Use Overview			
	Zoning	**Land Use**	**Notes**
North	R-1 SP	Vacant	Some agricultural use.
South	SP O-S A-2	Vacant	
East	SP R-1	Vacant Elementary School	
West	SP	Vacant	Some agricultural use.
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Status**
Closest Residence	1,407	Ferguson 8	Active
	2,817	Ferguson Tank Farm	Active
	11,435	RSF Gas Plant	Active
Closest School	3,823	Ferguson 8	Active
Closest Drainage	Field topography is hilly with multiple drainages.		

CRC Del Valle and Ramona Fields Adjacent Land Use Overview			
	Zoning	**Land Use**	**Notes**
North	A-2-2 SP	Vacant	
South	A-2-2 SP	Vacant	
East	M-1 SP A-2-2	Vacant	LA County Fire Del Valle Training Center on same parcel as some Del Valle wells.
West	A-2-2	Vacant and County of Ventura	
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Well Status**
Closest Residence	3,472	Well Lincoln 20	Idle
	9,708	Well Kern 30	Active
Closest School	6,356	Well Lincoln 4	Active
	9,708	Well Kern 30	Active
Closest Drainage	Field topography is hilly with multiple drainages.		

CRC Honor Rancho and Wayside Fields Adjacent Land Use Overview			
	Zoning	**Land Use**	**Notes**
North	A-2-5	Vacant	
South	A-2-2	Pitchess Detention Center	County Jail
East	A-2-5	Vacant	City of Santa Clarita east of Wayside Canyon

CRC Honor Rancho and Wayside Fields Adjacent Land Use Overview			
West	A-2-2	Vacant	I-5 Freeway
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Well Status**
Closest Residence	2,066	Wayside 58H	Active
	607 (Jail Dorm)	Honor Ranch 17	Active
Closest School	4,286	Wayside 58H	Active
Closest Drainage	Field topography is hilly with multiple drainages.		

Figure 6 – California Resources Company Facilities Aerial

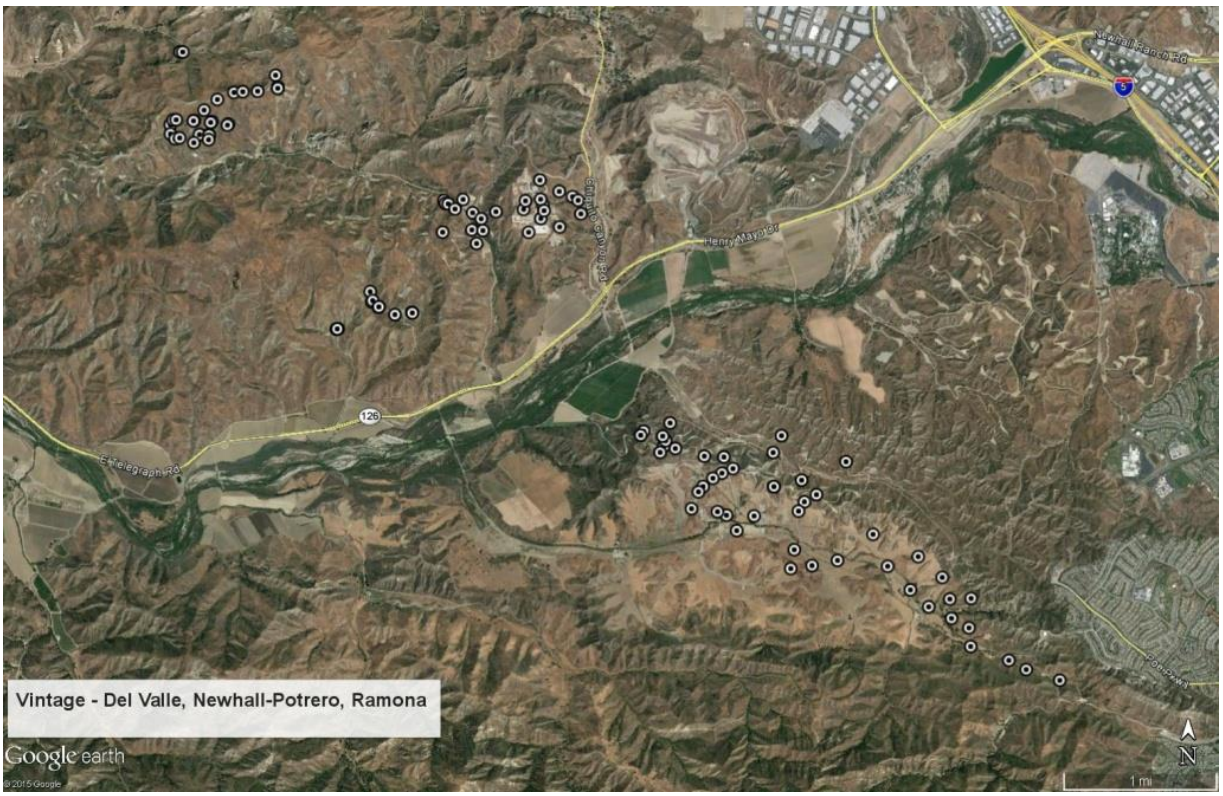


Figure 7 – California Resources Company Facilities Aerial

Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on 10/18/2016, 11/01/2016, and 12/6/16; items of note are listed in the tables below.

CRC Newhall-Potrero Fields Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	It is recommended that well work requirements be documented in a well work procedure and should include: 1) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 2) requirements for proper drilling mud disposal and storage; 3) limits on time-of-day deliveries to well sites; and 4) well work procedures that take place in proximity to the public should be

			addressed in a Community Health and Safety Plan.

CRC Del Valle and Ramona Fields Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	It is recommended that well work requirements be documented in a well work procedure and should include: 1) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 2) requirements for proposer drilling mud disposal and storage; 3) limits on time-of-day deliveries to well sites; and 4) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.

CRC Honor Rancho and Wayside Fields Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	It is recommended that well work requirements be documented in a well work procedure and should include: 1) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 2) requirements for proposer drilling mud disposal and storage; 3) limits on time-of-day deliveries to well sites; and 4) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.

Checklists, along with other data for the CRC fields, are included in Appendix J.

County DRP permits for the CRC wells are listed in the table below.

CRC Field Land Use Permit(s)					
Permit Type	**Permit Year**	**Permit Number**	**APNs Linked to Permit**	**Number of Wells On Permit**	**Number of Wells on APNs in DOGGR Data Base**
RPP	2010	201000886	2866004900 2866004905	4	13
RPP	2014	201301090	2866004900 2866004901 2866004905 2866004909	5	22
RPP	2012	201200350	2866004900 2866004905	4	14

Checklists, along with other data for the CRC facilities, are included in Appendix J.

Other Agency Historical Issues and Findings

Information from other regulatory agencies are derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit, and those findings are summarized in the table below. SCAQMD data, Notice of Violations (NOV) and Notice to Comply (NTC) data is from the SCAQMD FIND website for the previous 10-year data period. DOGGR data is as supplied by DOGGR to the Strike Team as of February 2017.

CRC Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Rancho San Francisco, Facility ID 151899	3 NOVs and 4 NTCs	Corrected, in compliance
SCAQMD	Barnes, Facility ID 148895	1 NOV and 1 NTC	Corrected, in compliance
SCAQMD	NLF, Facility ID 148897	2 NOVs	Corrected, in compliance
SCAQMD	Honor Rancho/Wayside Canyon, Facility ID 148894	None	
SCAQMD	Lincoln Facility ID 148896	None	
SCAQMD	Kern Orduno Facility ID 164709	None	
SCAQMD	Langdon Facility ID 165538	None	
SCAQMD	Middle Orduno Facility ID 168998.	None	
DOGGR	Newhall/Potrero (RSF) Facilities	Full compliance letter 1/6/16	
DOGGR	Newhall/Potrero (RSF) Facilities	Inspection report 10/18/16	Pending
DOGGR	Del Valle/Romana Facilities	NOV, 2 items	Pending

Health Screen Summary

Newhall-Potrero Fields

CRC operates 47 wells located at these sites within the jurisdiction of the County. The gas processing is transported by pipeline to the Gas Company. Oil is stored and shipped by truck. The only oil pipelines are onsite, no oil is transported by pipeline. Of the high priority public health risk items, the facilities

rank as a low public health risk for all items. This is due to the remoteness of facilities and wells to residences and the temporary nature of activities associated with filming onsite. The other public health risk items present a low level of risk due to the absence of high pressures, absence of hydrogen sulfide and low level of historical drilling activities. Spill risks are low since wells are not free flowing, and, although some wells are located adjacent to waterways, those well areas and the tank site are appropriately bermed, ameliorating the spill risk. The Public Health Screening Checklist is included in Appendix J.

Del Valle and Ramona Fields

CRC has 84 wells located at these sites within the jurisdiction of the County. The gas processing is transported by pipeline to the Santa Clara Gas Plant in Ventura County. Oil is stored and shipped by truck. There are only onsite oil pipelines. Of the high priority public health risk items, the facilities rank as a moderate public health risk for one of the four items. This is due to some of the wells being located within the LACO Fire Department Del Valle Training Center in proximity (nearer than 100 feet) to buildings, although all wells are located a substantial distance from residences. The other high priority public health risk items present a low level of risk due to the absence of high pressures, absence of hydrogen sulfide and low level of historical drilling activities. Spill risks are low since wells are not free flowing, no wells are located immediately adjacent to waterways, and the tank site and well areas are bermed, which provides secondary containment in the event of a spill. The Public Health Screening Checklist is included in Appendix J.

Honor Rancho and Wayside Canyon Fields

CRC operates 25 wells located at these sites within the jurisdiction of the County. The gas is flared at the site. Oil is stored and then shipped by truck. The only oil pipelines are onsite. Of the high priority public health risk items, the facilities rank as a low public health risk for all four items. This is due to facilities and wells not being in proximity to residences, although some wells are located near the County jail buildings. The other public health risk issues present a low level of risk due to the absence of high pressures, absence of hydrogen sulfide and low level of historical drilling activities. Spill risks are low as wells are not free flowing, and, although some wells are located adjacent to waterways, well areas and the tank sites are bermed. The Public Health Screening Checklist is included in Appendix J.

Photographs

Photographs are included on the following pages of this section.

CRC Ferguson – Gas Plant

CRC Kern – Well #1

CRC Honor Rancho – Tank Battery

CRC Wayside Canyon – Out-of-Service Tank Battery

CRC Orduno – Well

CRC NLF – Tank Battery

3.6 Crimson Resource Management (CRM)

CRM operates in three oil fields in Los Angeles County, Aliso Canyon, Castaic Hills, and Hasley Canyon. These fields were inspected by the Strike Team on November 15, 2016. Staff from County DRP, DPH, DPW, and Fire along DOGGR and SCAQMD staff and the County consultant attended the inspections; a list of attendees for each inspection is included in Appendix K.

Facility Description

The CRM wells can be grouped into three main field areas with separate processing facilities as described below.

Aliso Canyon (Standard-Sesnon Wells)

This field contains a total of 4 active, 8 idle wells, and associated pipelines. All well production is transported from the well heads to facilities operated by the Gas Company. The produced oil is processed at a Gas Company Tank Farm at the Gas Company facilities, and produced water is re-injected back into the reservoir in a Gas Company injection well. Wells are powered by the produced gas in small, less than 50 horse power, pump engines that utilize propane for backup fuel. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

Castaic Hills Field (CHU and Rynne-Fisher Wells)

This field contains 12 active and 12 idle wells, two tank farms, and associated pipelines. All produced oil goes to the Turney Tank Farm, where the water is removed and the oil is transported by tanker truck. Produced water is transported from the Turney Tank Farm to the Golden Tank Farm, where the water is removed by tanker truck and appropriately disposed. All produced gas is burned on-site at the CHU 144-36 well pump engine. Production volumes are low, averaging 35 barrels of oil per day and 40 barrels of water per day. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

Hasley Canyon Field (Burns Crist, Mabel E. Strawn, Mabel Strawn, McGillevrae, and Saad Wells)

This field contains 14 active and 2 idle wells, several tank farms and associated pipelines tying most of the facilities together. The Mable E. Strawn and Mabel Strawn wells oil production is de-watered at the Mabel Strawn Tank farm and transported by tanker truck. Oil production from the McGillevrae wells is processed at the McGillevrae Tank Farm and transported by tanker truck. Burns Crist and Saad wells oil production is taken to the associated Burns Crist and Saad Tank Farms, respectively; the produced oil is then transferred by tanker truck. All Hasley Canyon field produced water is transferred from the various tank farms to the McGillevrae Tank Farm, where it is transported off-site by tanker truck. All produced gas is burned at the Mable Strawn, Burns Crist, and Saad Tank Farms in small heaters to warm and improve the viscosity of the oil for transfer and loading into tanker trucks. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

The tables below provide summaries of key information for the Crimson field facilities.

Crimson Well Overview	
Operator	Crimson Resource Management Corp.
Number of Wells	52
Current Zoning on Subject APNs and Number of Wells	A-2 Heavy Agricultural (43) M-1.5 Restricted Heavy Manufacturing (2) R-1 Single Family Residence (5) RPD Residential Planned Development (2)
Fields	Hasley Canyon Castaic Hills Aliso Canyon
Leases	Burns Crist CHU Mabel E. Strawn Mabel Strawn McGillevrae Rynne-Fisher Sadd Standard-Sesnon 1
DOGGR District (s)	2
DOGGR Operator Code	C9035

Crimson Aliso Canyon Field Adjacent Land Use Overview			
	Zoning	**Land Use**	**Notes**
North	A-2-2	Vacant	Field in and adjacent to Gas Company wells and infrastructure.
South	A-2-2	Vacant	
East	A-2-2	Vacant	
West	A-2-2	Vacant	
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Status**
Closest Residence	6,240	Well Standard-Sesnon 1- 46	Active
Closest School	8,903	Well Standard-Sesnon 1- 46	Active
Closest Drainage	Field topography is hilly with multiple drainages.		

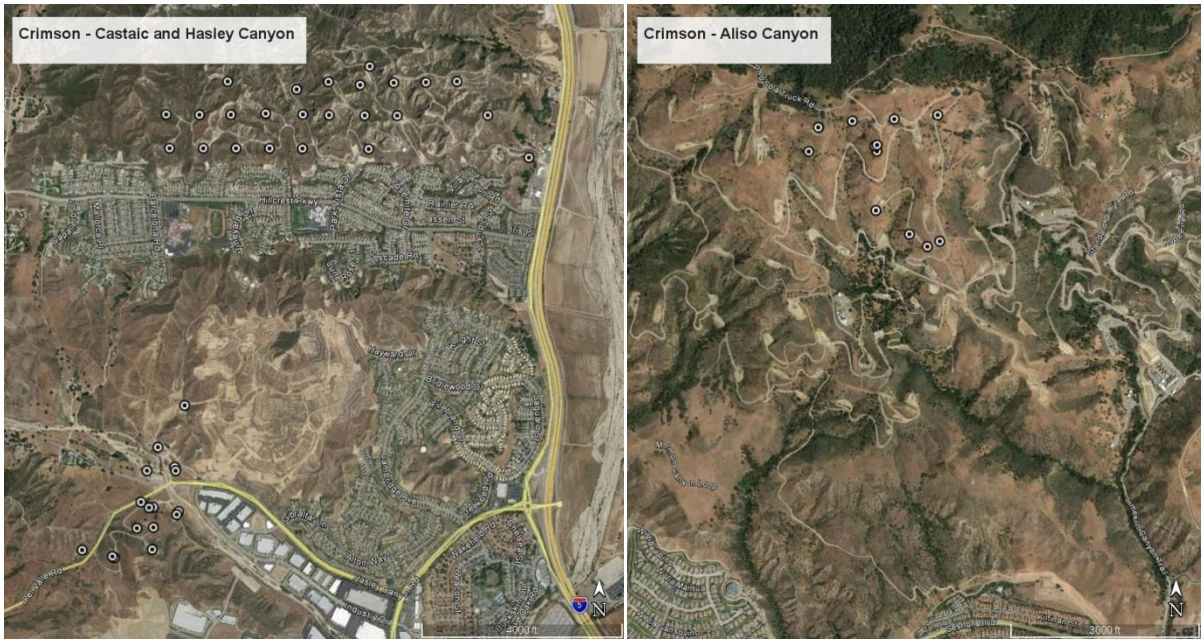
Crimson Castaic Hills Field Adjacent Land Use Overview			
	Zoning	**Land Use**	**Notes**
North	RPD-1-2U A-2-2 R-1-7500 RPD-500-1.9U	Vacant Single family residential	
South	M-1 R—1-5000	Industrial Residential	
East	M-1 R-1 RPD 180	Industrial Residential	
West	A-2-2	Vacant	
Sensitive Land Uses			

Crimson Castaic Hills Field Adjacent Land Use Overview			
	Distance	**Well/Tank**	**Well Status**
Closest Residence	315	Well CHU 144-36	Active
	778	Turney Tank Farm	Active
Closest School	1,109	Well CHU 54-35	Inactive water injection
	3,647	Turney Tank Farm	Active
Closest Drainage	Field topography is hilly with multiple drainages.		

Crimson Hasley Canyon Field Adjacent Land Use Overview			
	Zoning	**Land Use**	**Notes**
North	A-2-2	Vacant	
South	MPD-DP R-1	Vacant	
East	A-2-2 RPD-5000-2.8U M-1.5	Single family residential and warehouses	
West	A-2-2	Single family residential	
Sensitive Land Uses			
	Distance	**Well/Tank**	**Well Status**
Closest Residence	1,321	Well Burns Crist 6	Active
Closest School	3,647	Well Burns Crist 7	Active
Closest Drainage	Field topography is hilly with multiple drainages.		

Figures 8 provides an aerial overview of the facilities.

Figure 8 – Crimson Resource Management Aerial Views



Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on November 15, 2016; items of note are listed in the tables below.

Crimson Aliso Canyon Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	It is recommended that well work requirements be documented in a well work procedure and should include: 1) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 2) requirements for proper drilling mud disposal and storage; 3) limits on time-of-day deliveries to well sites; and 4) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.
Secondary Containment	SC	Two wells contained fluid levels requiring removal per DOGGR inspector, DOGGR 1777(c)(3).	It is recommended that the fluid be removed per DOGGR regulations. It is acknowledged that during rainy season fluid levels in cellars can

Crimson Aliso Canyon Field Findings			
			accumulate after rain events and between vacuum truck maintenance events.

Crimson Castaic Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Oil Field Waste	FW.4	Some scrap metal and concrete, material does not belong to operator.	It is recommended that metal, concrete, trash, and other debris be removed from tank farm and wells sites and disposed of properly.
Fire Fuel Management	F.3	Tank farms have significant amount of weeds/vegetation in and around the facilities.	Weed abatement recommended for safety and compliance with Fire regulations.
Safety/Signage	G.7	The loading racks do not have signage summarizing loading procedures for safety and security.	It is recommended that the loading rack use process and security procedures signage to be placed at all loading rack locations
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	It is recommended that well work requirements be documented in a well work procedure and should include: 1) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 2) requirements for proposer drilling mud disposal and storage; 3) limits on time-of-day deliveries to well sites; and 4) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.
Safety/Security	NA	Well 144-36 has fencing around the well cellar, however, there is no fencing or enclosure around the well pump jack/well pump motor. The well pump motor is an I.C. engine with large fly wheel and belt.	It is recommended that a fence or enclosure around the pump unit be installed due to large moving parts that may represent a safety hazard should a member of the public gain access to area. Recommend fencing be placed around entire pump area.

Crimson Hasley Canyon Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Oil Field Waste	FW.4	Some scrap metal and concrete, material does not belong to operator.	It is recommended that metal, concrete, trash, and other debris be removed from tank farm and wells sites and disposed of properly.
Security	S.2	Saad and Burns Crist Tank Farms fencing not complete or damaged, access by public is possible.	It is recommended that fencing be repaired to prevent access by the public per DOGGR requirements.
Security	S.2	Loading rack at Saad Tank Farm hose lock was not locked.	It is recommended that the loading rack system be locked when not in use and that the loading rack procedure signs should include lock instructions.
Safety/Signage	G.7	The loading racks do not have signage summarizing loading procedures for safety and security.	It is recommended that the loading rack use process and security procedures signage to be placed at all loading rack locations
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	It is recommended that well work requirements be documented in a well work procedure and should include: 1) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 2) requirements for proposer drilling mud disposal and storage; 3) limits on time-of-day deliveries to well sites; and 4) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.

The County land use permit research did not identify any permits associated with the Crimson wells or oil and gas operations.

Checklists, along with other data for the Crimson facilities, are included in Appendix K.

Other Agency Historical Issues and Findings

Information from other regulatory agencies as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit are summarized in the table below. Notice of Violation (NOV), Notice to Comply (NTC), and SCAQMD data is from the SCAQMD FIND website for the previous 10-year data period. DOGGR data is as supplied by DOGGR to the Strike Team as of February 2017.

Crimson Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Pending determination of correct Facility ID numbers	Pending	Corrected, in compliance
DOGGR	Aliso Canyon	4/19/16 NOV, 8 items	Pending
DOGGR	Castaic	4/21/16 NOV, 20 items	Pending
DOGGR	Hasley Canyon	4/21/16 NOV, 14 items	Pending

Health Screen Summary

Aliso Canyon

Crimson operates 12 wells located at this site within the jurisdiction of the County. The processing facility is located at the adjacent Gas Company facility. Of the high priority public health risk items, the facilities rank as a low public health risk for all four items. This is due to the remoteness of facilities and lack of proximity of wells to sensitive receptors and the absence of high pressures, hydrogen sulfide and historical drilling activities. Spill risks are low since wells are not free flowing, no wells are located immediately adjacent to waterways, and the tank site areas are bermed, providing secondary containment in the event of an oil spill.

Castaic Hills

Crimson operates 24 wells located at this site within the jurisdiction of the County. Of the high priority public health risk items, the facilities rank as a moderate public health risk for one of the four items based on the findings of the site visit. This particular item is related to the facilities' proximity to sensitive receptors for some well pads, which in some cases wells are located 315 feet from residences. For the remaining three areas, including high pressures, hydrogen sulfide and historical drilling activities, public health risk levels are low. Spill risks are low since wells are not free flowing, no wells are located immediately adjacent to waterways, and the tank site areas are bermed.

Hasley Canyon

Crimson operates 16 wells located at this site within the jurisdiction of the County. Of the high priority public health risk items, the facilities rank as a low public health risk for all of the items. This is due to the remoteness of facilities to sensitive receptors. For the remaining three areas, including high pressures, hydrogen sulfide and historical drilling activities, public health risk levels are also considered to be low. Spill risks are considered medium as some wells are located in proximity to creeks, and not all well pads are bermed, yet wells are not free flowing, and the tank site areas are bermed.

Photographs

Photographs are included on the following pages of this section.

Crimson Aliso Canyon – Well

Southern California Gas Company – Gas Plant

Crimson – Golden Tank Farm Water Loading

Crimson – McGill Tank Farm

Crimson Castaic – Well

Crimson - Burns Christ Tank Farm

3.7 Brea Canon

Brea Canon operates in the Torrance Oil Field in Los Angeles County. The field and associated leases were inspected by the Strike Team on November 29, 2016. Staff from County DRP, DPH, DPW, and Fire along with SCAQMD and DOGGR staff and the County consultant attended the inspections; a list of attendees for each inspection is included in Appendix L (DOGGR staff did not sign the sign-in sheet).

Facility Description

The Brea Canon wells are grouped into four leases and two basic units, the Joughin Unit and the South Torrance Unit. Production from these wells is processed at two main locations outside the County of Los Angeles at 23903 South Normandie Avenue in the City of Los Angeles and 630 West Lomita Boulevard in the Harbor City neighborhood in the City of Los Angeles. These Brea Canon facilities include tank farms, a gas plant, a cogeneration unit, a truck loading rack, and associated pipelines. Produced oil from the Joughin wells is transferred by pipeline to the Normandie Avenue facility, where it is de-watered and transported off-site by pipeline. The South Torrance well oil production is processed at the Lomita Boulevard location, and the oil is transported by tanker truck. All gas production is transferred by field pipelines to the Normandie Avenue facility, where it is processed and used as fuel in cogeneration turbines to power the wells in the Torrance field. The gas plant does not have a flare. Produced water is re-injected into the reservoir in a water flood well enhancement process. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

The tables below provide summaries of key information for the Brea Canon wells and facilities.

Brea Canon Well Overview	
Operator	Brea Canon Oil Company
Number of Wells	66
Current Zoning on Subject APNs and Number of Wells	M-1 Light Manufacturing (1) M-2 Heavy Manufacturing (17) C-2 Neighborhood Business (2) C-3 Unlimited Commercial (9) R-1 Single Family Residence (24) R-3 Limited multiple residence (13)
Fields	Torrance
Leases	Joughin 1 Joughin 4 Joughin Unit South Torrance Unit
DOGGR District (s)	1
DOGGR Operator Code	B6100

Brea Canon Field Adjacent Land Use Overview		
	Zoning	**Land Use**
North	Multiple APNs and Zoning	The Torrance Oil Field wells are scattered throughout the southern portion of the West Carson Zoned District. Wells are adjacent to single family detached homes, mobile homes, industrial and commercial uses, and the 110 Freeway to the west.
South		
East		
West		

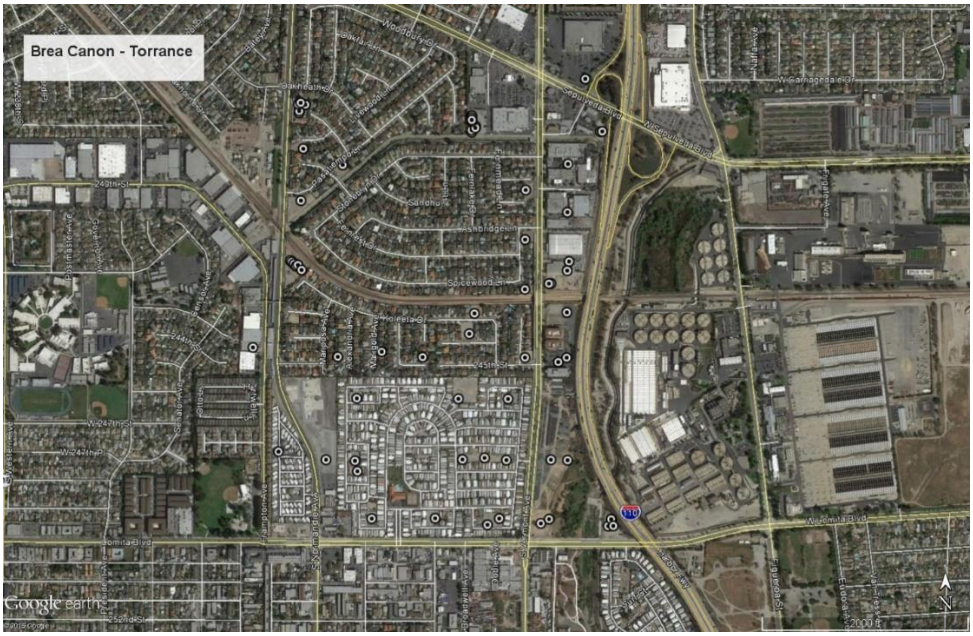
Brea Canon Field Adjacent Land Use Overview			
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Status**
Closest Residence	Various	There are 47 wells on properties adjacent to single family detached residences or mobile homes.	
Closest School	1,206	Well Joughin4 - 5	Active

The Brea Canon Torrance Field is located in an urban, built-out environment. The Facility Checklist provides for the review of wells located within certain distances to certain standards as identified by County DRP, the County Fire Code, and DOGGR. The table below summarizes the location criteria and number of wells that meet that critera.

Brea Canon Wells to Public Land Uses		
Checklist ID Code	**Criteria**	**Number of Wells**
SB.2	DOGGR definition of a critical well; 300' from occupied building or airport runaway (DOGGR 1720)	65
SB.3	DOGGR definition as 100' Critical well; 100 from street, highway, navigable/perennial water, public facility (DOGGR 1720)	35
SB.5	DOGGR definition as public nuisance well; Within 100 feet of outer boundary or public street (DOGGR 3600)	53
SB.6	Wells within 20' of a public highway? (Title 22.7)	1
SB.7	Wells within 100' of building? (Fire 3406.3.1.3)	50
SB.8	Wells within 300' of assembly or school? (Fire 3406.3.1.4)	1
SB.9	Wells within 75' of street or railway? (Fire 3406.3.1.2)	18

Figure 9 provides an aerial overview of the facilities.

Figure 9 Brea Canon



Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on November 15, 2016; items of note are listed in the table below.

Brea Canon Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	Well work requirements should be documented in a well work procedure and should include: 1) the use of non-combustible sound proofing material; 2) the use of mufflers/silencers on IC engines; 3) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 4) requirements for proposer drilling mud disposal and storage; 5) Limits on time-of-day deliveries to well sites; 6) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.
Brush Clearance	F.3	A few well sites do not have sufficient clearance from brush.	Review all well sites to ensure proper fire department clearance from brush.
Signage	WSG.3	Signs for Wells 7-F and 13-F are difficult to see based on location.	Signs are in compliance; however, it is recommended that the signs be moved for better visibility.
Security	S.3	Well W-3 block perimeter	It is recommended that the block wall be repaired

Brea Canon Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
		wall is damaged.	pursuant to DOGGR regulations.
Secondary Containment	SC.4 SC.5	Some well locations have the potential for storm-water and/or emulsion spill runoff.	It is recommended that certain well site berm design and maintenance be reviewed and modified for better containment volumes. Wells noted for review include 4-E, 5-E, 6-E, 22-F, 11-D, and 12-F.
Signage	WSG.2	Signs for Well AC-31 does not have emergency contact information.	It is recommended that emergency contact information be added to the sign for compliance with DOGGR regulations.

County DRP permits for the Brea Canon wells are listed in the table below.

Brea Canon Field Land Use Permit(s)					
Permit Type	**Permit Year**	**Permit Number**	**APNs Linked to Permit**	**Number of Wells On Permit**	**Number of Wells on APNs in DOGGR Data Base**
ZEC	1964	7430	7409022037	7	6
ZEC	1965	7553	7409019014	15	1
ZEC	1966	8120	7409029011	Maximum of 20	7

Checklists, along with other data for the Brea Canon facilities, are included in Appendix L.

Other Agency Historical Issues and Findings

Information from other regulatory agencies as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit are summarized in the table below. SCAQMD data, Notice of Violations (NOV) and Notice to Comply (NTC) data is from the SCAQMD FIND website for the previous 10-year data period. DOGGR data is as supplied by DOGGR to the Strike Team as of February 2017.

Brea Canon Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Brea Canon, Facility ID 082512	None	
DOGGR	No documents received to date		
Harbor City	Brea Canon pipelines	Oil Spills from pipelines in December 2011, October 2005, March 2010, and June 2010.	To be determined.

Health Screen Summary

Brea Canon operates 66 wells at this site located within the jurisdiction of the County. The processing facilities are located adjacent to the County in the City of Los Angeles. Of the high priority public health risk items, the Brea Canon facilities rank as a high public health risk for one of the four items. This particular item is related to the facilities' proximity to sensitive receptors, where in some cases wells are located nearer than 50 feet to homes. For the remaining areas, including high pressures, hydrogen

sulfide and historical drilling activities, public health risk levels are considered low. Spill risks are high as pipelines are located immediately adjacent to waterways and, although annual pressure tests are conducted on some portions of the pipeline system, there are no means of detection or alarms in the event of a leak. The Public Health Screening Checklist is included in Appendix L.

Photographs

Photographs are included on the following pages of this section.

Brea Canon – Well and Adjacent Homes

Brea Canon – Tanks

Brea Canon – Well

Brea Canon – Site 9

Brea Canon – Well in Mobile Home Park

Brea Canon – Pipeline

3.8 Breitburn Energy

Breitburn Energy operates the Rosecrans and Rosecrans South oil fields in Los Angeles County. The fields and associated leases were inspected by the Strike Team on December 13, 2016. Staff from County DRP, DPH, DPW, and Fire and the County consultant attended the inspections; a list of attendees for each inspection is included in Appendix M.

Facility Description

Breitburn Energy operates 47 active and 17 idle wells located in the Rosecrans and Rosecrans South fields. The primary processing facility for the Breitburn Rosecrans and Rosecrans South field wells is the Rosecrans LACT, located at 130 Rosecrans Avenue in the City of Gardena. The Rosecrans LACT facility processes produced oil and produced water from the Rosecrans, Rosecrans South, and seven other leases in the area. The produced water is re-injected into the reservoir in a water flood well enhancement process. Produced gas is processed at a Gas Plant located at 13601 South Broadway, Los Angeles. Other Breitburn facilities include the O'Dea Tank Farm, the Callendar Tank Farm, the Crawford Tank Farm and the Riverside Tank Farm. The produced water is pumped to the O'Dea Tank Farm prior to re-injection. The Crawford Tank Farm contains several out-of-service (OOS) tanks. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

Ten wells are within parcels directly adjacent to residential lots, and four wells are within parcels located directly across a street buffer from a residential lot.

The tables below summarize key information for the Breitburn Energy facilities. Figure 10 provides an aerial view of the facilities.

Breitburn Well Overview	
Operator	Breitburn Operating L.P.
Number of Wells	64
Current Zoning on Subject APNs and Number of Wells	R-1 Single Family Residence (3) M-1-IP Light Manufacturing (6) M-1.5-IP Restrictive Heavy Manufacturing (16) M-2-IP Heavy Manufacturing (38) B-1-IP Buffer Zone (1)
Fields	Rosecrans Rosecrans, South
Leases	Rosecrans Rosecrans A
DOGGR District (s)	1
DOGGR Operator Code	B6131

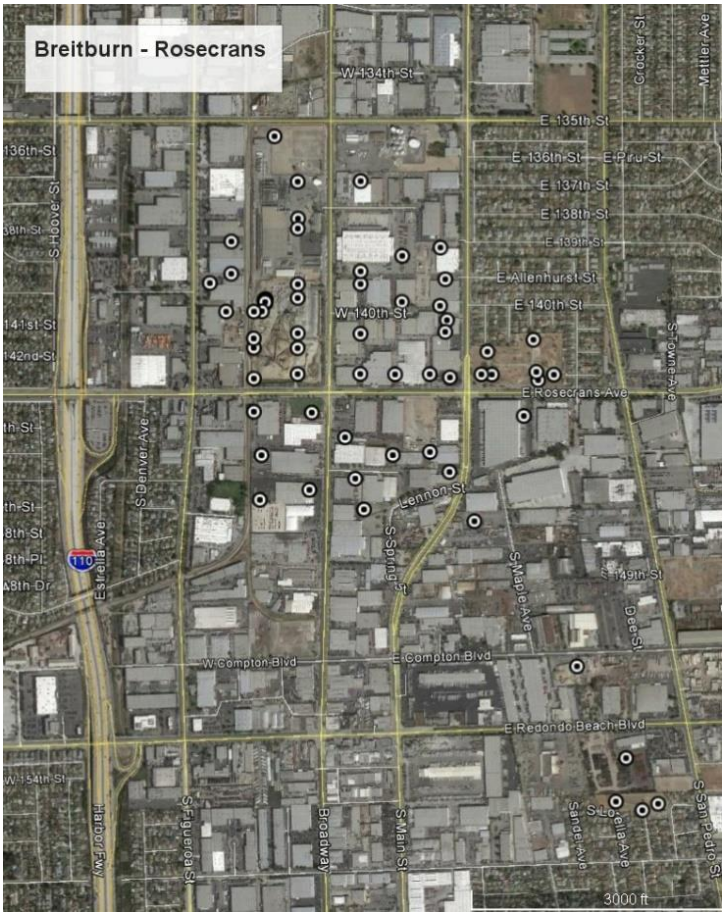
Breitburn Energy Field Adjacent Land Use Overview		
	Zoning	**Land Use**
North	Multiple APNs and Zoning	The wells are scattered throughout the southern portion of the Athens Zoned District and the northwestern portion of the Victoria Zoned District. These wells are adjacent to single family detached homes, light to heavy industrial uses, and
South		
East		
West		

Breitburn Energy Field Adjacent Land Use Overview			
		interwoven by public streets.	
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Status**
Closest Residence	43	Well Riverside 1	Active, ICE powered well pump
	1,109	Rosecrans LACT Tank Farm	Active
Closest School	926	Well Padelford 2	Idle
	2,425	Rosecrans LACT Tank Farm	Active

The Breitburn Rosecrans and Rosecrans South fields are located in an urban, built-out environment. The Facility Checklist provides for review of wells located within certain distances to certain standards as identified by County DRP, the County Fire Code, and DOGGR. The table below summerizes the location criteria and number of wells that meet the critera.

Breitburn Energy Wells to Public Land Uses		
Checklist ID Code	**Criteria**	**Number of Wells**
SB.2	DOGGR definition of a critical well; 300' from occupied building or airport runaway (DOGGR 1720)	61
SB.3	DOGGR definition as 100' Critical well; 100 from street, highway, navigable/perennial water, public facility (DOGGR 1720)	11
SB.5	DOGGR definition as public nuisance well; Within 100 feet of outer boundary or public street (DOGGR 3600)	57
SB.6	Wells within 20' of a public highway? (Title 22.7)	0
SB.7	Wells within 100' of building? (Fire 3406.3.1.3)	42
SB.8	Wells within 300' of assembly or school? (Fire 3406.3.1.4)	0
SB.9	Wells within 75' of street or railway? (Fire 3406.3.1.2)	8

Figure 10 – Breitburn Facilities Aerials



Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on December 13, 2016; items of note are listed in the table below.

Breitburn Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Well Work Procedures	N.2, N.3, N.4, N.5, FI.2, FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur due to the proximity to residences.	Well work requirements should be documented in a well work procedure and should include: 1) the use of non-combustible sound proofing material; 2) the use of mufflers/silencers on IC engines; 3) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 4) requirements for proposer drilling mud disposal and storage; 5) Limits on time-of-day deliveries to well sites; 6) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.
Signage	AQ.8	Perimeter fencing or well	Applicable perimeter or well fencing should have

Breitburn Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
		sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	the notification information as per SCAQMD requirements.
Safety/Signage	G.7	The loading racks do not have signage summarizing loading procedures for safety and security.	It is recommended that the loading rack use process and security procedures signage to be placed at all loading rack locations
Noise	NA	Well Riverside 2 submersible pump motor emitted noise at 70 db adjacent to residential neighborhood.	A daytime noise level of 70 dBA may exceed the 60 dBA County Noise Ordinance threshold for nighttime and Sundays for a single-family residential land use at the adjacent homes. It is recommended that the operator assess the noise levels at the Riverside #2 well site and explore methods to mitigate the noise level. Noise impacts can lead to sleep disturbance and contribute to cardiovascular health effects, among other chronic health problems.
Safety/Signage	G.7	The loading racks do not have signage summarizing loading procedures for safety and security.	It is recommended that the loading rack use process and security procedures signage to be placed at all loading rack locations

County DRP permits for the Breitburn wells are listed in the table below.

Breitburn Energy Field Land Use Permit(s)					
Permit Type	**Permit Year**	**Permit Number**	**APNs Linked to Permit**	**Number of Wells On Permit**	**Number of Wells on APNs in DOGGR Data Base**
PP	1989	37782	6132044033	6	1

Checklists, along with other data for the Breitburn facilities, are included in Appendix M.

Other Agency Historical Issues and Findings

Information from other regulatory agencies, as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit, are summarized in the table below. SCAQMD data, Notice of Violations (NOV) and Notice to Comply (NTC) data is from the SCAQMD FIND website for the previous 10-year data period. DOGGR data is as supplied by DOGGR to the Strike Team as of February 2017.

Breitburn Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Callender Lease, Facility ID 150214	None	
SCAQMD	O'Dea Lease Facility/Flare, Facility ID 150209	None	
SCAQMD	Rosecrans LACT, Facility ID 150203	None	Corrected, in compliance

Breitburn Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Rosecrans Gas Plant, Facility ID 150208	None	Corrected, in compliance
SCAQMD	Crawford Lease, Facility ID 150205	1 NTC	Corrected, in compliance
SCAQMD	Riverside Lease, Facility ID 150212	1 NTC	Corrected, in compliance
SCAQMD	O'Dea GenSet, Facility ID 153236	1 NTC	Corrected, in compliance
SCAQMD	Rosecrans GenSet, Facility ID 150206	3 NTCs	Corrected, in compliance
SCAQMD	Rosecrans Wells, Facility ID 150197	None	
DOGGR	No documents received to date		

Health Screen Summary

Breitburn operates 64 wells at this site located within the Rosecrans and Rosecrans South fields. The processing facility is located within the jurisdiction of the County. Of the high priority public health risk items, the Breitburn facilities rank as a high public health risk for one of the four items. This particular item is related to the facilities' proximity to sensitive receptors; some wells are located less than 50 feet from homes. For the remaining areas, including high pressures, hydrogen sulfide and historical drilling activities, public health risk levels are considered low. Spill risks are considered low as no pipelines are located immediately adjacent to waterways, and there are minimal environmental receptors. The Public Health Screening Checklist is included in Appendix M.

Photographs

Photographs are included on the following pages of this section.

Breitburn Callender – Tank Battery

Breitburn Chandler – 4 Well-Submersible Pump

Breitburn Rosecrans – Loading Rack

Breitburn Rosecrans – Well (Industrial Land Use)

Breitburn Rosecrans – Well (Gravel Pit)

Breitburn – Well (Parking Lot)

3.9 Watt Companies

Watt Companies operates fields on the Albert and Phillips leases. The fields, the Newhall and Placerita fields, were inspected by the Strike Team on April 4, 2017. Staff from County DRP, DPW, and Fire, SCAQMD, DOGGR and the County consultant attended the inspections; a list of attendees for each inspection is included in Appendix N.

Facility Description

Watt Companies operates 26 active and 4 idle wells located in the Newhall and Placerita fields. All wells including the active wells are currently idle due to economic issues and electrical power to the field has been shut off; the field has been shut in since October 2015. All wells are operated by electric pumps. When the field is operating, processing occurs at the Phillip Tank Farm located near the center of the field. Oil is dewatered at the Phillips facility and loaded into trucks at a loading rack for transport offsite. All gas is burned in a SCAQMD permitted heater to heat water for water flood/steam injection well recovery. The facility does not have a flare. The tank farm contains four stock tanks, two wash tanks, a brine tank, and a fresh water tank. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

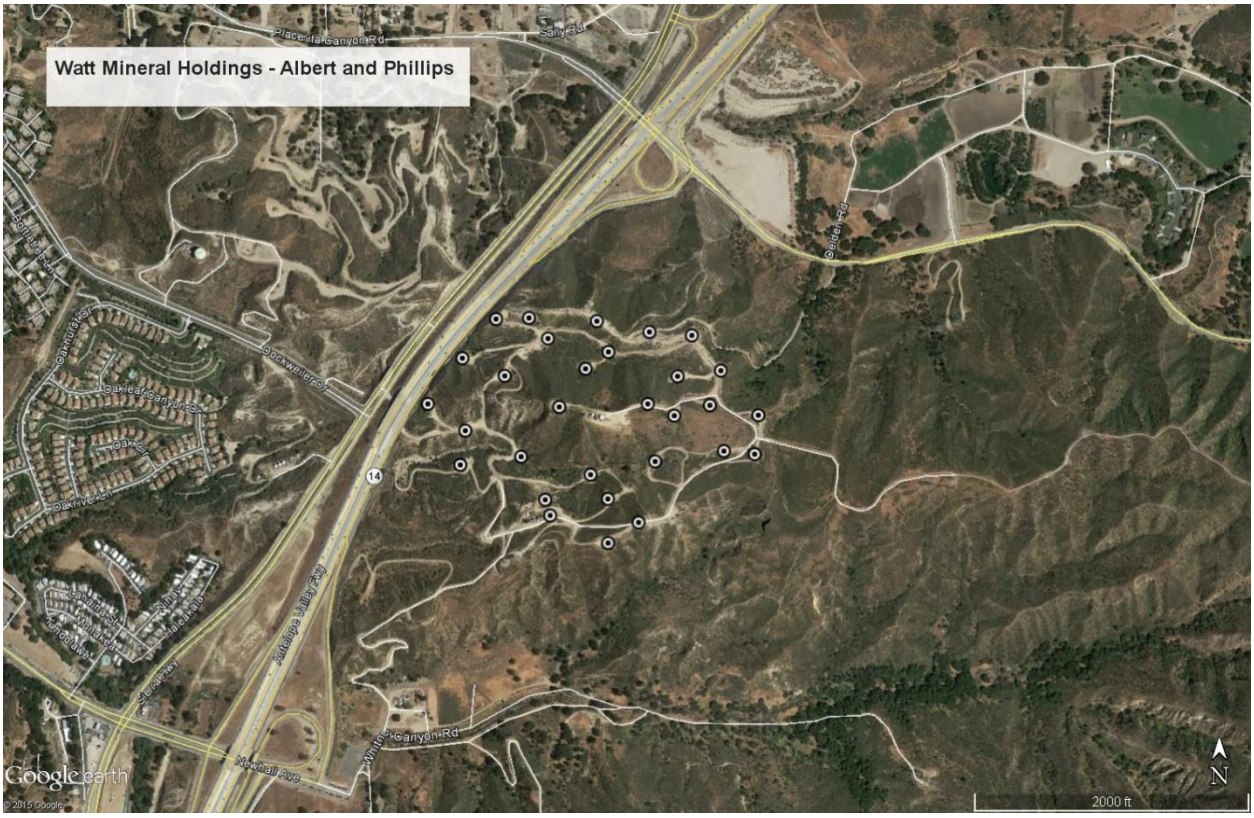
The tables below summarize key information for the Watt Companies facilities. Figure 11 provides an aerial view of the facilities.

Watt Well Overview	
Operator	Watt Mineral Holdings
Number of Wells	30
Current Zoning on Subject APNs	A-2 Heavy Agricultural O-S Open Space
Fields	Newhall Placerita
Leases	Albert Phillips
DOGGR District (s)	2
DOGGR Operator Code	W0510

Watt Companies Field Adjacent Land Use Overview			
	Zoning	**Land Use**	
North	A-2-2	Vacant land, agrarian use, and single family residential	
South	---	Vacant land in Santa Clarita jurisdiction	
East	W	Vacant land, Angeles National Forest	
West	O-S	Vacant land, State Route 14, Santa Clarita, residential	
Sensitive Land Uses	**Distance (feet)**	**Well/Tank**	**Status**
Closest Residence	1,541	Well 2-A	Active
	1,478	Tank Facility South	Active
	2,357	Tank Facility North	Active
Closest School	4,466	Well 2-A	Active

Watt Companies Field Adjacent Land Use Overview			
	5,488	Tank Facility South	Active
	5,706	Tank Facility North	Active

Figure 11 – Watt Facility Aerial


Watt Mineral Holdings - Albert and Phillips
Placerita Canyon Rd
Sally Rd
Elder Rd
Oakridge Dr
Oakridge Ct
Oak Ct
Oak Ridge Ln
Oak Ridge Dr
Oak Ridge Cir
Oak Ridge Ln
Oak Ridge Ln
Oak Ridge Ln

Watt Companies Newhall and Placerita Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Well Work Procedures	N.2, N.3, N.4, N.5, FI.2, FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur due to the proximity to residences.	Well work requirements should be documented in a well work procedure and should include: 1) the use of non-combustible sound proofing material; 2) the use of mufflers/silencers on IC engines; 3) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 4) requirements for proposer drilling mud disposal and storage; 5) Limits on time-of-day deliveries to well sites; 6) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Safety/Signage	G.7	The loading racks do not have signage summarizing loading procedures for safety and security.	It is recommended that the loading rack use process and security procedures signage to be placed at all loading rack locations
Secondary Containment	SC.3	Tank farm contains vegetation/weed growth	It is recommended that weed abatement be completed where necessary.
Security	S.2	Wells 6, 7, 11, 22, and 27 fencing in poor condition.	The oil field has adequate perimeter fencing, however, some well enclosure fencing is in poor condition and is recommended for repair.

County DRP permits for the Watt wells are listed in the table below.

Watt Companies Field Land Use Permit(s)					
Permit Type	**Permit Year**	**Permit Number**	**APNs Linked to Permit**	**Number of Wells On Permit**	**Number of Wells on APNs in DOGGR Data Base**
CUP	1974	572	Not Identified	2 new, 20 total	Not Referenced

Checklists, along with other data for the Watt facilities, are included in Appendix N.

Other Agency Historical Issues and Findings

Information from other regulatory agencies, as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit, did not result in any findings. The SCAQMD FIND website was reviewed for the previous 10-year data period data for Notice of Violations (NOV) and Notice to Comply (NTC) data and no NOV or NTC notifications were posted. SCAQMD staff did note some Rule 1173 fugitive emission leaks during the Strike Team inspection as noted on the Well Checklists, however, these leaks did not generate compliance documentation. DOGGR data is as supplied by DOGGR to the Strike Team as of July 2017.

Watt Companies Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Facility ID #152641	None	In compliance
DOGGR	No documents received to date		

Health Screen Summary

Watt has 30 wells located at this site within the County. Oil is stored and shipped by truck. There are only onsite pipelines. Of the high priority public health risk items, the facilities rank as a low public health risk for all four of the items. This is due to the facilities' remoteness from residential areas and the absence of high pressures, hydrogen sulfide and historical drilling activities. Spill risks are low as wells are not free flowing, minimal wells are located immediately adjacent to waterways, and the tank site and well areas are bermed. The Public Health Screening Checklist is included in Appendix N.

Photographs

Photographs are included on the following pages of this section.

Watt Albert 17 Well

Watt Tank Farm

Watt Well and Highway 14

Watt Facility Location Overview

3.10 Matrix Whittier

Matrix Whittier operates 13 active wells and one idle well in the Whittier field on the Mitchell Energy lease. Twelve of the wells are producing wells and one is a water flood injection well. The wells were inspected by the Strike Team on April 4, 2017. Staff from County DRP, DPW, and Fire, SCAQMD, DOGGR and the County consultant attended the inspections; a list of attendees for each inspection is included in Appendix O.

Facility Description

The Matrix Whittier facility, also known as the Matrix Rideout/Sycamore Canyon facility, is located at 5020 Workman Mill Road in Whittier. In addition to the 13 active wells, the site contains one idle well and one plugged well. All wells are operated by electric pumps. Oil is dewatered onsite and loaded into trucks at a loading rack for transport offsite. All gas is burned in a SCAQMD permitted flare; a new flare was installed in 2014 and the older flare remains as a backup. The facility contains two 750-barrel oil tanks and four process/brine tanks. Produced water is tested and discharged to sanitation sewer system under permit by the LA County Sanitation District.

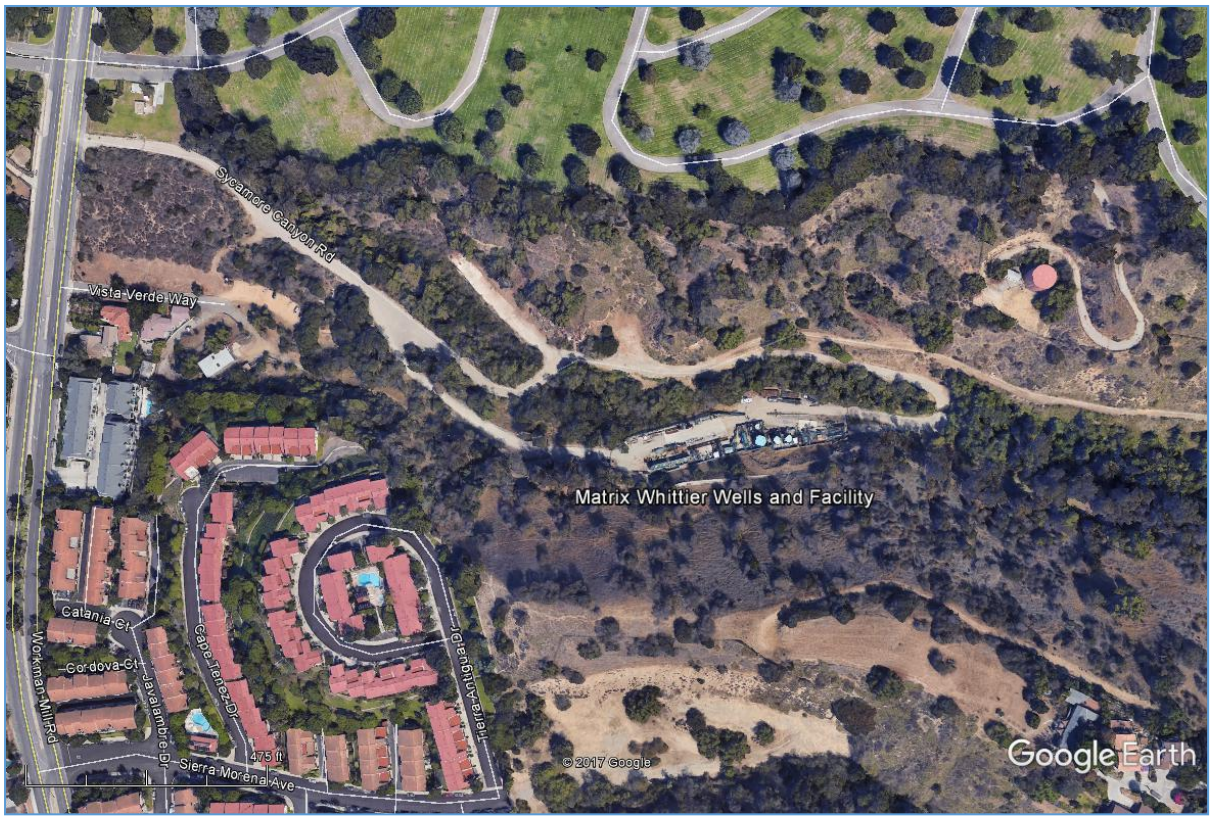
The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

The tables below summarize key information for the Matrix Whittier facilities. Figure 12 provides an aerial view of the facilities.

Matrix Well Overview	
Operator	Matrix Oil Corporation
Number of Wells	14
Current Zoning on Subject APNs	A-1-5 Light Agricultural
Fields	Whittier
Leases	Mitchell Energy
DOGGR District (s)	1
DOGGR Operator Code	M2600

Matrix Oil Corporation Field Adjacent Land Use Overview			
	Zoning	**Land Use**	
North	A-1.5	Rose Hills Memorial Cemetery	
South	A-1.5	Vacant	
East	A-1.5	Vacant	
West	A-1.5	Vacant and City of Whittier residential	
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Status**
Closest Residence	488	Well S-32	Idle
	670	Tank Farm	Active
Closest School	3,330	Well S-32	Idle
	3,474	Tank Farm	Active

Figure 12 – Matrix Whittier Aerial



Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on April 4, 2017; items of note are listed in the table below.

Matrix Whittier Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Well Work Procedures	N.2, N.3, N.4, N.5, FI.2, FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur due to the proximity to residences.	Well work requirements should be documented in a well work procedure and should include: 1) the use of non-combustible sound proofing material; 2) the use of mufflers/silencers on IC engines; 3) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 4) requirements for proposer drilling mud disposal and storage; 5) Limits on time-of-day deliveries to well sites; 6) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Safety/Signage	G.7	The loading racks do not	It is recommended that the loading rack use

Matrix Whittier Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
		have signage summarizing loading procedures for safety and security.	process and security procedures signage to be placed at all loading rack locations

County DRP permits for the Watt wells are listed in the table below.

Matrix Whittier Field Land Use Permit(s)					
Permit Type	**Permit Year**	**Permit Number**	**APNs Linked to Permit**	**Number of Wells On Permit**	**Number of Wells on APNs in DOGGR Data Base**
PP	1977	28522	8126001903	Permit for Multi-Well Cellar	13

Checklists, along with other data for the Watt facilities, are included in Appendix O.

Other Agency Historical Issues and Findings

Information from other regulatory agencies, as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit, is shown in the table below. The SCAQMD FIND website was reviewed for the previous 10-year data period data for Notice of Violations (NOV) and Notice to Comply (NTC) data. DOGGR data is as supplied by DOGGR to the Strike Team as of July 2017.

Matrix Whittier Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Matrix Facility ID 131425	NOV	Case Closed
SCAQMD	Matrix Facility ID 131425	NOV	In compliance
SCAQMD	Matrix Facility ID 131425	NTC	Information requested
SCAQMD	Matrix Facility ID 131425	NTC	NOV
SCAQMD	Matrix Facility ID 131425	NTC	NOV
DOGGR	No documents received to date		

Health Screen Summary

Matrix has 14 wells located at this site within the County. Oil is stored and shipped by truck. Only onsite pipelines. Of the high priority public health risk items, the facilities rank as a low public health risk for hydrogen sulfide and pressures, and medium public health risk for proximity to residences and historical drilling activities. Spill risks are medium due to the proximity of facilities to creeks, although wells are not free flowing and all wells are located within a contained well cellar located onsite and the tank site and well areas are well bermed. The Public Health Screening Checklist is included in Appendix O.

Photographs

Photographs are included on the following pages of this section.

Matrix Whittier Well Cellar

Matrix Whittier Tank Farm

Matrix Whittier Loading Rack

Matrix Whittier Flare

3.11 Breitburn Sawtelle and Dominguez

Breitburn Energy operates the Sawtelle and Dominguez facilities; the Sawtelle facility is owned by Breitburn and the Dominguez facility is owned by Pacific Coast Energy Company and operated by Breitburn Energy. The two facilities were inspected by the Strike Team on May 17, 2017. Staff from County DRP, DPW, and Fire, DOGGR and the County consultant attended the inspections; a list of attendees for each inspection is included in Appendix P.

Sawtelle Facility Description

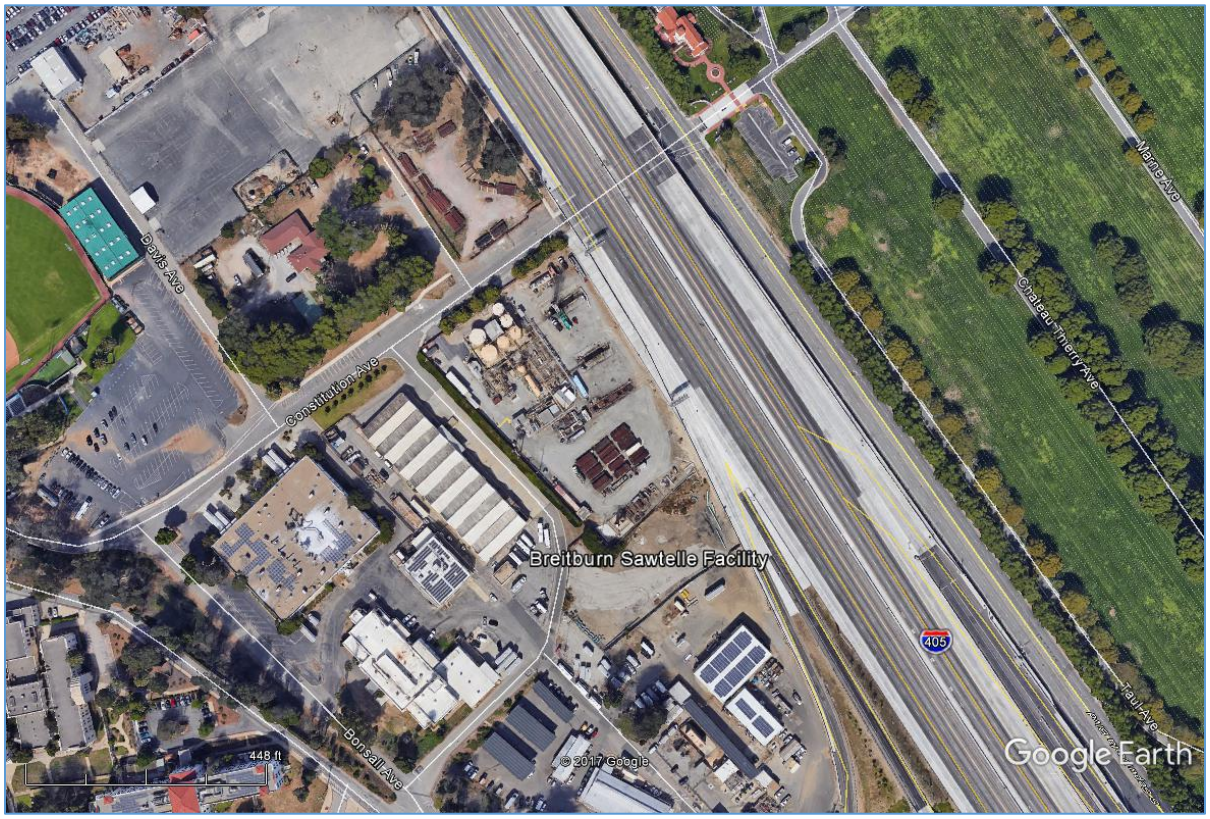
The Sawtelle facility contains 14 active and 2 idle wells located in the Sawtelle field on the Dowlen-Federal lease. The wells and associated facilities are all on the same parcel which is located immediately adjacent to the 405 freeway. All wells are powered by electric pumps, and 13 of the 14 active wells are located in group cellars. Oil is separated onsite and transported from the site in tanker trucks, approximately three tanker trucks per day. Produced gas is sold to the Gas Company and burned in a SCAQMD permitted flare. Produced water is re-used for water flood well enhancement via a water injection well. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4. The Sawtelle facility is located on Federal Lands and subject to the oil and gas regulations of the U.S. Bureau of Land Management.

The tables below summarize key information for the Breitburn Sawtelle facility. Figure 13 provides an aerial view of the facilities.

Breitburn Well Overview	
Operator	Breitburn Sawtelle
Number of Wells	16
Current Zoning on Subject APNs	O-S Open Space
Fields	Sawtelle
Leases	Dowlen-Federal
DOGGR District (s)	1
DOGGR Operator Code	B6131

Breitburn Sawtelle Field Adjacent Land Use Overview			
	Zoning	**Land Use**	
North	City of LA	City of LA, storage, parking, Veterans Affairs Medical	
South	O-S	Vacant and industrial uses	
East	O-S	405 freeway and Los Angeles National Cemetery	
West	O-S	Industrial and Veterans Affairs Medical	
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Status**
Closest Residence	1,025	Facility	Active
Closest School	4,079	Facility	Active

Figure 13 - Breitburn Sawtelle Facility



Dominguez Facility Description

The Dominguez facility contains 3 active and 1 idle well located in the Dominguez field on the Dominguez Estates and M.M. lease. Produced gas and water are separated onsite and transported offsite; oil to market by truck and water to the Breitburn Rosecrans facility. Gas is used in a heater and or flared in SCAQMD permitted devices. All wells are powered by electric pumps. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

The tables below summarize key information for the Breitburn facilities. Figure 14 provides an aerial view of the facilities.

Operator	Breitburn Dominguez
Number of Wells	4
Current Zoning on Subject APNs	M-2-IP Heavy Manufacturing Industrial Preservation
Fields	Dominguez
Leases	Dominquez Estates and M.M.
DOGGR District (s)	1
DOGGR Operator Code	B6127

Breitburn Dominguez Field Adjacent Land Use Overview			
	Zoning	**Land Use**	
North	C-M-DP	Dominguez Hills Estates mobile home park	
South	M-2-IP	Warehouses	
East	C-M-DP	Dominguez Hills Estates mobile home park	
West	C-M-DP	Dominguez Hills Estates mobile home park	
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Status**
Nearest Residence	30	Tank	Active
	45	Well	Active
Closest School	4,325	Facility	Active

Figure 14 – Breitburn Dominguez Aerial

Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on April 4, 2017; items of note are listed in the table below.

Breitburn Sawtelle Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Well Work Procedures	N.2, N.3, N.4, N.5, FI.2, FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur due to the proximity to residences.	Well work requirements should be documented in a well work procedure and should include: 1) the use of non-combustible sound proofing material; 2) the use of mufflers/silencers on IC engines; 3) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 4) requirements for proposer drilling mud disposal and storage; 5) Limits on time-of-day deliveries to well sites; 6) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.

Breitburn Dominguez Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Well Work Procedures	N.2, N.3, N.4, N.5, FI.2, FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur due to the proximity to residences.	Well work requirements should be documented in a well work procedure and should include: 1) the use of non-combustible sound proofing material; 2) the use of mufflers/silencers on IC engines; 3) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 4) requirements for proposer drilling mud disposal and storage; 5) Limits on time-of-day deliveries to well sites; 6) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Safety/Signage	G.7	The loading racks do not have signage summarizing loading procedures for safety and security.	It is recommended that the loading rack use process and security procedures signage to be placed at all loading rack locations

Research of the County DRP records for the Breitburn Sawtelle and Dominguez wells did not result in any permit documentation.

Checklists, along with other data for the Breitburn Sawtelle and Dominguez facilities, are included in Appendix P.

Other Agency Historical Issues and Findings

Information from other regulatory agencies, as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit, did not result in any findings. The SCAQMD FIND website was reviewed for the previous 10-year data period data for Notice of Violations

(NOV) and Notice to Comply (NTC) data. DOGGR data is as supplied by DOGGR to the Strike Team as of July 2017.

Breitburn Sawtelle and Dominguez Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Dominguez Facility ID 120099	NTC	In compliance
SCAQMD	Dominguez Facility ID 120099	NOV	Closed
DOGGR	No documents received to date		

Health Screen Summary

Breitburn Sawtelle & Dominguez have a total of 16 and 4 wells located at these two sites within the County, respectively. Oil is stored and shipped by truck. Gas is either sold or flared or used in heaters. Of the high priority public health risk items, the Dominguez facility ranks as a high public health risk for one of the items due to its proximity to residences at the Dominguez Hills Estates Mobile Home Park, and a low priority for the remaining items. The Sawtelle facility ranks as low risk for all four items. This is due to the absence of high pressures, hydrogen sulfide and historical drilling activities. Spill risks are low as wells are not free flowing, and no wells are located immediately adjacent to waterways, with the site and well areas all being bermed. The Public Health Screening Checklist is included in Appendix O.

Photographs

Photographs are included on the following pages of this section.

Breitburn Sawtelle Well Cellar

Breitburn Sawtelle Tank Farm

Breitburn Sawtelle Vapor Recovery System

Breitburn Sawtelle Flare

Breitburn Dominguez Wells

Breitburn Dominguez Tanks

3.12 LBTH

LBTH Inc. operates 35 wells, 16 active and 19 idle, on the Del Valle and Ramona fields. The wells are associated with the Sepulveda, Vasquez, Vasquez W.D. and N.L.F. leases. The facilities were inspected by the Strike Team on May 23, 2017. Staff from County DRP, DPW, DPH, and Fire, DOGGR and the County consultant attended the inspections; a list of attendees for each inspection is included in Appendix Q.

Facility Description

The 35 wells are operated on three locations; 19 wells on the Sepulveda lease, 14 wells on the Vasquez/Vasquez WD lease, and 2 on the N.L.&F. lease. Each lease has a tank farm where the oil, water, and gas are separated. Produced oil is stored in tanks and shipped to market by truck; each tank farm area has an oil loading rack. Gas from the Vasquez/Vasquez WD and N.L.&F. leases is transported by pipeline to the Sepulveda tank farm and then by pipeline to the Santa Clara Gas Plant located in Ventura County. Produced water is disposed in the water disposal well Vasquez WD 1-17. All wells are powered by electric pumps. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

The tables below summarize key information for the LBTH facilities. Figure 15 shows aerial view of the LBTH facility location.

LBTH Well Overview	
Operator	LBTH Inc.
Number of Wells	35
Current Zoning on Subject APNs	A-2 Heavy Agriculture SP Specific Plan
Fields	Del Valle Ramona
Leases	Sepulveda Vasquez Vasquez W.D. N.L.F.
DOGGR District (s)	2
DOGGR Operator Code	L0875

LBTH Inc. Field Adjacent Land Use Overview			
	Zoning	**Land Use**	
North	A-2-2	Vacant	
South	SP	Vacant	
East	A-2-2 and SP	Vacant	
West	A-2-2 and SP	Vacant and Ventura County	
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Status**
Closest Residence	1,520	Well Sepulveda 13	Active
	1,430	Sepulveda Tank Farm	Active
Closest School	6,960	Well Sepulveda 17	Active
	8,580	Sepulveda Tank Farm	Active

Figure 15 – LBTH Aerial

Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on May 23, 2017; items of note are listed in the table below.

LBTH Inc. Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Signage	AQ.8	Perimeter fencing or well sites fencing do not have AQMD contact information posted pursuant to AQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	Well work requirements should be documented in a well work procedure and should include: 1) the use of non-combustible sound proofing material; 2) the use of mufflers/silencers on IC engines; 3) AQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 4) requirements for proposer drilling mud disposal and storage; 5) Limits on time-of-day deliveries to well sites; 6) well work procedures that take place in close proximity to the public should be addressed in a Community Health and Safety Plan.

LBTH Inc. Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Safety/Signage	G.7	The loading racks do not have signage summarizing loading procedures for safety and security.	It is recommended that the loading rack use process and security procedures signage to be placed at all loading rack locations.
Secondary Containment	SC.2	The loading racks utilize dirt berms and/or small plastic buckets for secondary containment.	It is recommended that improvements be made for greater capacity and control of fluids to the loading rack secondary containment systems.
Secondary Containment	SC.2	The Sepulveda Tank Farm and N.L.F. secondary containment dirt berms require maintenance.	The secondary containment berms should be repaired and maintained pursuant to DOGGR requirements and the SPCC plan.
Secondary Containment	SC	Wells adjacent to steep slopes have the potential for significant offsite impacts from a fluid release.	Recommend installation of a berm around the well sites or well pad area at Wells 12-20, 14-20, 16, 23, 12-17, and 17-17.
Secondary Containment	SC	Well 21 area contains significant amount of weeds/vegetation.	Recommend weed abatement maintenance at Well 21.

Research of the County DRP records for the LBTH Inc. wells did not result in any permit documentation.

Checklists, along with other data for the Watt facilities, are included in Appendix Q.

Other Agency Historical Issues and Findings

Information from other regulatory agencies, as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit, did not result in any findings. The SCAQMD FIND website was reviewed for the previous 10-year data period data for Notice of Violations (NOV) and Notice to Comply (NTC) data. DOGGR data is as supplied by DOGGR to the Strike Team as of July 2017.

LBTH Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Facility ID #s 90088, 83849, 66816, 77260, and 77259	None	In compliance
DOGGR	No documents received to date		

Health Screen Summary

LBTH has 35 wells located at this site within the County. Oil is stored and shipped by truck. Only onsite oil pipelines. Gas is sent by pipeline to Ventura for sales. Of the high priority public health risk items, the facilities rank as a low public health risk for all four of the items. This is due to the facilities' remoteness from residential areas and the absence of high pressures, hydrogen sulfide and historical drilling activities. Spill risks are low as wells are not free flowing, minimal wells are located immediately

adjacent to waterways, and the tank site and well areas are bermed, although some improvements are recommended. The Public Health Screening Checklist is included in Appendix Q.

Photographs

Photographs are included on the following pages of this section.

LBTH Well #17

LBTH Well and Containment Berm

LBTH Tanks

LBTH Loading Rack

3.13 Anterra

Anterra Services operates 2 active wells in the Tapia field on the Seville West Tapia (Well 2) and Tapia (Well 1-25) leases. The facilities were inspected by the Strike Team on May 23, 2017. Staff from County DRP, DPW, and Fire, DOGGR and the County consultant attended the inspections; a list of attendees for each inspection is included in Appendix R.

Facility Description

The Anterra facilities consists of the 2 wells and a tank farm with two tanks; one for produced oil and one for produced water. Both produced oil and produced water are removed from the site by tanker truck. Oil production is very low with an estimated annual throughput of 120 barrels. Produced gas is sent to a flare at the adjacent Jean Martinez facility. Both wells are powered by electric pumps. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

The tables below summarize key information for the Anterra facility. Figure 16 provides an aerial view of the facility.

Anterra Well Overview	
Operator	Anterra Services
Number of Wells	2
Current Zoning on Subject APNs	O-S Open Space
Fields	Tapia
Leases	Seville West Tapia and Tapia
DOGGR District (s)	2
DOGGR Operator Code	A3229

Anterra Services Field Adjacent Land Use Overview			
	Zoning	**Land Use**	
North	O-S	Castaic Sports Complex zoned O-S	
South	A-2-5	Vacant	
East	A-2-2	Vacant and Castaic Creek flood wash	
West	O-S	Vacant and Interstate 5 Freeway	
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Status**
Closest Residence	2,700	Well 2	Active
	2,690	Tank Farm	Active
Closest School	6,690	Well 1-25	Active
	6,670	Tank Farm	Active

Figure 16 – Anterra Services Aerial

Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on May 23, 2017; items of note are listed in the table below.

Anterra Services Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Signage	AQ.8	Perimeter fencing or well sites fencing do not have AQMD contact information posted pursuant to AQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.

Anterra Services Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	Well work requirements should be documented in a well work procedure and should include: 1) the use of non-combustible sound proofing material; 2) the use of mufflers/silencers on IC engines; 3) AQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 4) requirements for proposer drilling mud disposal and storage; 5) Limits on time-of-day deliveries to well sites; 6) well work procedures that take place in close proximity to the public should be addressed in a Community Health and Safety Plan.
Safety/Signage	G.7	The loading racks do not have signage summarizing loading procedures for safety and security.	It is recommended that the loading rack use process and security procedures signage to be placed at all loading rack locations.

County DRP permits for the Anterra Services wells are listed in the table below.

Anterra Services Field Land Use Permit(s)					
Permit Type	**Permit Year**	**Permit Number**	**APNs Linked to Permit**	**Number of Wells On Permit**	**Number of Wells on APNs in DOGGR Data Base**
PP	1977	33712	2865012916	Not Specified	2

Checklists, along with other data for the Anterra facilities, are included in Appendix R.

Other Agency Historical Issues and Findings

Information from other regulatory agencies, as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit, did not result in any findings. The SCAQMD FIND website was reviewed for the previous 10-year data period data for Notice of Violations (NOV) and Notice to Comply (NTC) data. DOGGR data is as supplied by DOGGR to the Strike Team as of July 2017.

Anterra Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Facility ID # 173379	None	In compliance
DOGGR	No documents received to date		

Health Screen Summary

Anterra has 2 wells located at this site within the County. Oil is stored and shipped by truck. Only onsite pipelines. Of the high priority public health risk items, the facilities rank as a low public health risk for all four of the items. This is due to the facilities' remoteness from residential areas and the absence of high pressures, hydrogen sulfide and historical drilling activities. Spill risks are medium due to the facilities'

proximity to waterways, but wells are not free flowing, and the tank site and well areas are all well bermed. The Public Health Screening Checklist is included in Appendix R.

Photographs

Photographs are included on the following pages of this section.

Anterra Services Well

Anterra Services Well Detail

Anterra Services Tank Facility

Anterra Services Tank and Loading Rack

3.14 Jean Martinez

Jean Martinez operates a single well in the Tapia field on the UFL lease. The facilities were inspected by the Strike Team on May 23, 2017. Staff from County DRP, DPW, and Fire, DOGGR and the County consultant attended the inspections; a list of attendees for each inspection is included in Appendix S.

Facility Description

The Jean Martinez facilities consist of the well, a small tank farm, and a flare. Both produced oil and produced water are removed from the site by tanker truck. Oil production is very low with an estimated 3 to 4 barrels per day throughput. Produced gas is sent to a flare. The well is powered by an electric pump. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

The tables below summarize key information for the Jean Martinez facility. Figure 17 provides an aerial view of the facility.

Jean Martinez Well Overview	
Operator	Jean Martinez
Number of Wells	1
Current Zoning on Subject APNs	O-S Open Space
Fields	Tapia
Leases	USL
DOGGR District (s)	2
DOGGR Operator Code	M2460

Jean Martinez Facility Adjacent Land Use Overview			
	Zoning	**Land Use**	
North	O-S	Castaic Sports Complex zoned O-S	
South	A-2-5	Vacant	
East	A-2-2	Vacant and Castaic Creek flood wash	
West	O-S	Vacant and Interstate 5 Freeway	
Sensitive Land Uses			
	Distance (feet)	**Well/Tank**	**Status**
Closest Residence	2,480	Well 1	Active
	2,480	Tank Farm	Active
Closest School	6,890	Well 1	Active
	6,890	Tank Farm	Active

Figure 17 – Jean Martinez Aerial

Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on May 23, 2017; items of note are listed in the table below.

Jean Martinez Facility Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Signage	AQ.8	Perimeter fencing or well sites fencing do not have AQMD contact information posted pursuant to AQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Well Work Procedures	FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur.	Well work requirements should be documented in a well work procedure and should include: 1) the use of non-combustible sound proofing material; 2) the use of mufflers/silencers on IC engines; 3) AQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 4) requirements for proposer drilling mud disposal and storage; 5) Limits on time-of-day deliveries to well sites; 6) well work procedures that take place in close proximity to the public should be

Jean Martinez Facility Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
			addressed in a Community Health and Safety Plan.
Safety/Signage	G.7	The loading racks do not have signage summarizing loading procedures for safety and security.	It is recommended that the loading rack use process and security procedures signage to be placed at all loading rack locations.

Research of the County DRP records for the Jean Martinez well did not result in any permit documentation.

Checklists, along with other data for the Jean Martinez facilities, are included in Appendix S.

Other Agency Historical Issues and Findings

Information from other regulatory agencies, as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit is provided in the table below. The SCAQMD FIND website was reviewed for the previous 10-year data period data for Notice of Violations (NOV) and Notice to Comply (NTC) data. DOGGR data is as supplied by DOGGR to the Strike Team as of July 2017.

Jean Martinez Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Jean Martinez Facility ID 136623	NOV	Closed, in compliance
DOGGR	No documents received to date		

Health Screen Summary

Jean Martinez has 1 well located at this site within the County. Oil is stored and shipped by truck. Only onsite pipelines. Of the high priority public health risk items, the facilities rank as a low public health risk for all four of the items. This is due to the facilities' remoteness from residential areas and the absence of high pressures, hydrogen sulfide and historical drilling activities. The facilities are in proximity to the Castaic Sports Complex soccer fields, but the nearest field is 150 feet away. Spill risks are low as wells are not free flowing, although the well is located adjacent to waterways, with the tank site and well areas all being bermed. The Public Health Screening Checklist is included in Appendix R.

Photographs

Photographs are included on the following pages of this section.

Jean Martinez Well

Jean Martinez Tanks

Jean Martinez Tank Bottom Detail

3.15 Power Run Oil

Power Run Oil operates four wells located on the Howard Townsite and Rosecrans South fields; leases Howard, Deist, Hunter, and Brownstein. The wells were inspected by the Strike Team on July 11, 2017. Staff from County DRP, DPW, DPH, and Fire, and the County consultant attended the inspections; a list of attendees for each inspection is included in Appendix T.

Facility Description

The Power Run Oil wells are located at four separate locations on 120th Street in Los Angeles and on Redondo Beach Boulevard in Gardena as listed in the following table.

Field	Lease	Well Number	Address
Rosecrans South	Brownstein	1	249 East Redondo Beach Blvd., Gardena
Howard Townsite	Howard	1	1442 West 120th St., Los Angeles
Howard Townsite	Deist	86-1	1519 West 120th St., Los Angeles
Howard Townsite	Hunter	1	1548 West 120th St., Los Angeles

All wells utilize an electrically powered hydraulic pump; the pump motors are housed in shipping container type buildings for noise control, with the exception of Well Brownstein 1, which is located in an industrial area. The Howard 1 well is currently shut in for oil but is still producing some gas. Each well site includes a small tank farm where the oil is de-watered and loaded into trucks at a loading rack for transport offsite. The gas is burned in two SCAQMD permitted heaters located at the Brownstein and Deist well locations. The heat is used to warm the oil to facilitate oil water separation and tanker truck loading. None of the well/tank farm facilities has a flare. The facility does not use hydraulic fracturing or other enhanced well completion techniques subject to Senate Bill 4.

The tables below summarize key information for the Power Run Oil. Figures 18 and 19 provide aerial views of the facilities.

Power Run Oil Well Overview	
Operator	Power Run Oil
Number of Wells	4
Fields	Rosecrans South Howard Townsite
Leases	Brownstein Howard Deist Hunter
DOGGR District (s)	1
DOGGR Operator Code	P4153

Power Run Adjacent Land Use Overview			
	Land Use	**Zoning**	**Notes**
Facility	Well Brownstein 1	M-2-IP	Heavy Manufacturing Industrial Preservation
North	Industrial warehouse	M-2-IP	
South	Road	ROW	Redondo Beach Boulevard
East	Industrial warehouse	M-2-IP	
West	Industrial warehouse	M-2-IP	
Closest school	Nearest well 1,973 feet Nearest tank 1,968 feet		
Closest residence	Nearest well 263 feet Nearest tank 257 feet		
	Land Use	**Zoning**	**Notes**
Facility	Well Howard 1	R-1	Single Family Residence
North	West 120 Street, single family residence, Elementary School	R-1	
South	Single family residential	R-1	
East	Single family residential	R-1	
West	Single family residential	R-1	
Closest school	Nearest well 231 feet Nearest tank 131 feet		
Closest residence	Nearest well 23 feet		
	Land Use	**Zoning**	**Notes**
Facility	Well Deist 86-1	R-1	Single Family Residence
North	Single family residential	RPD-5000-10U	
South	Single family residential	R-1	
East	Single family residential	R-1	
West	Single family residential	R-1	
Closest school	Nearest well 446 feet Nearest tank 453 feet		
Closest residence	Nearest well 68 feet Nearest tank 11 feet		

Power Run Adjacent Land Use Overview			
	Land Use	**Zoning**	**Notes**
Facility	Well Hunter 1	R-1 R-1	Single FamilyResidence
North	Single family residential	RPD-5000-10U	
South	Single family residential	R-1	
East	Single family residential	R-1	
West	Single family residential	R-1	

Closest school	Nearest well 620 feet Nearest tank 532 feet
Closest residence	Nearest well 59 feet Nearest tank 36 feet

Figure 18 - Power Run Brownstein Facility Aerial

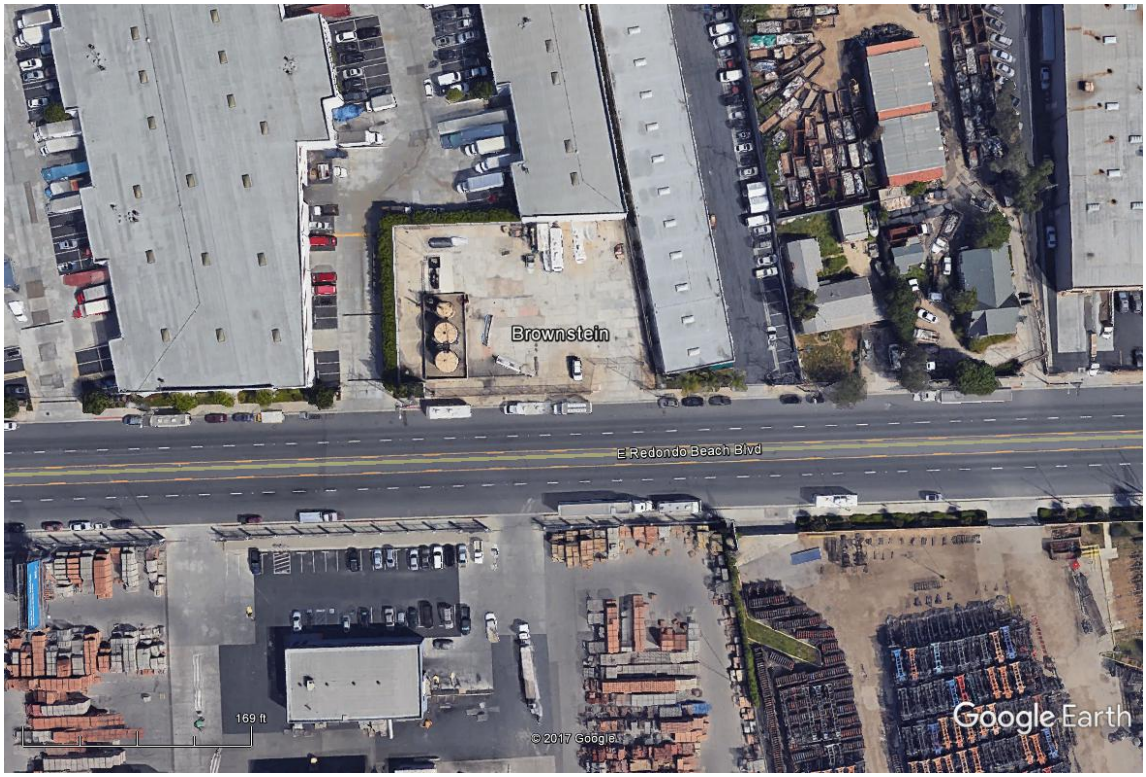


Figure 19 – Power Run Hunter, Deist, and Howard Facilities Aerial

Strike Team Findings

The review of the facility permit conditions and regulatory compliance occurred during the site inspections performed on July 11, 2017; items of note are listed in the table below.

Power Run Oil Field Findings			
Issue Area	**Checklist ID Code**	**Description**	**Recommendation**
Well Work Procedures	N.2, N.3, N.4, N.5, FI.2, FW.3, AQ.6, AQ.11	Although drilling has not occurred recently at any well sites located within the County, there are a number of requirements that should be followed if drilling were to occur due to the proximity to residences.	Well work requirements should be documented in a well work procedure and should include: 1) the use of non-combustible sound proofing material; 2) the use of mufflers/silencers on IC engines; 3) SCAQMD requirements related to notification (Rule 1148.2) and use of rubber grommets for piping/tubes/rod replacement activities; 4) requirements for proposer drilling mud disposal and storage; 5) Limits on time-of-day deliveries to well sites; 6) well work procedures that take place in proximity to the public should be addressed in a Community Health and Safety Plan.
Signage	AQ.8	Perimeter fencing or well sites do not have SCAQMD contact information posted pursuant to SCAQMD Rule 1148.1 (d) (13).	Applicable perimeter or well fencing should have the notification information as per SCAQMD requirements.
Safety/Signage	G.7	The loading racks do not have signage summarizing loading procedures for safety and security.	It is recommended that the loading rack use process and security procedures signage to be placed at all loading rack locations

Research of the County DRP records for the Power Run facilities did not result in any permit documentation.

Checklists, along with other data for the Power Run Oil facilities, are included in Appendix U.

Other Agency Historical Issues and Findings

Information from other regulatory agencies, as derived from agency input, agency web research, or agency field findings during the Strike Team Project field visit, are summarized in the table below. SCAQMD data, Notice of Violations (NOV) and Notice to Comply (NTC) data is from the SCAQMD FIND website. DOGGR data is as supplied by DOGGR to the Strike Team on July 10, 2017.

Power Run Oil Other Agency Compliance Issues			
Agency	**Location**	**Compliance Item(s)**	**Status**
SCAQMD	Facility ID 169812	None	In compliance
SCAQMD	Facility ID 169813	None	In compliance
SCAQMD	Facility ID169814	None	In compliance
SCAQMD	Facility ID 153593	None	In compliance
DOGGR	Deist	NOV	In compliance
DOGGR	Deist	NOV	In compliance

Health Screen Summary

Power Run Oil have a total of 4 wells located at these 4 sites within the County, respectively. Oil is stored and shipped by truck. Gas is transported and used in heaters. Of the high priority public health risk items, the facilities rank as a high public health risk for one of the items due to their proximity to residences at the Howard, Deist and Hunter facility, and a low priority for the remaining items. This is due to the absence of high pressures, hydrogen sulfide and historical drilling activities. Spill risks are low as wells are not free flowing, and no wells are located immediately adjacent to waterways, with the sites and well areas are all bermed. The Public Health Screening Checklist is included in Appendix T.

Photographs

Photographs are included on the following pages of this section.

Power Run Browstein Well

Power Run Browstein Tanks

Power Run Howard Well

Power Run Howard Tank Farm

Power Run Deist Well

Power Run Deist Tank

Power Run Hunter Well

Power Run Hunter Tank Farm

3.16 Other Operators

Strike Team staff was not able to inspect certain wells due to the inability to obtain access from the operator. It is important to note that access to the oil wells, the associated process facilities, and submittal of certain documentation to Strike Team staff was completed on a voluntary basis. The Strike Team acknowledges and appreciates the operators of those facilities that provided access, staff assistance, and documentation for the Project. Due to the pending litigation regarding the recent gas leak, the Southern California Gas Company wells and facilities were not inspected. In addition, research completed during the Project and recent updates to the DOGGR data base determined that some of the wells initially identified as active are actually buried, plugged, or abandoned. The table below summarizes the wells that were not visited by operator name, number of wells and well status.

Operator	Number of Wells	Status
Asioco Inc./John Guzman	2	No access provided
FE-I LLC	2	No access provided
Sherwin D. Yoelin	2	No access provided
Hawker Energy Inc	37	No access provided
Thompco Inc	8	No access provided
Thompson Oil Co., Inc.	9	No access provided
Charles C Townsend	2	No access provided
El Chico Corp.	1	No access provided
Southern California Gas Company	160	Contact with operator not available
A. D. Kneuper	1	Buried
Anchor Petroleum Co.	1	Buried
Arcadia Oil Co.	1	Buried
Asioco Inc.	2	Plugged and abandoned
C. C. Julian	1	Buried
Central Oil Co.	1	Buried
Chevron U.S.A. Inc.	1	Buried
Church Minor Syndicate	1	Orphaned/Abandoned
Cypress Petroleum	1	Buried
D.D.Dunlap&JohnF.Tracey	1	Buried
Deltron Drilling Inc.	3	Plugged and abandoned
J. T. Robertson Co.	1	Buried
Joseph B. Dabney	1	Buried
Liberty Oil Co.	2	Orphaned/Abandoned
M.L.C.R. Co.	1	Buried
Mars Oil Co.	1	Buried
Montebello Mascot	1	Buried
Montebello Oil Syn	1	Orphaned/Abandoned
Oryx Energy Company	1	Buried
Otis G. Andrews & Sons	1	Buried
Pacifica Oil Co.	1	Plugged and abandoned
Pugh-Miller Drilling Co.	1	Buried
R. W. Jackson	1	Buried
Ricano Oil Co.	4	Orphaned/Abandoned

Operator	Number of Wells	Status
Robert S. Lytle Operator	2	Buried
Rucker and Croul	1	Orphaned/Abandoned
Russian Oil Co.	1	Buried
Santa Fe Dome Oil Co. #2	1	Buried
Santa Fe Done Oil Co.	1	Buried
So. Cal Oil Co.	1	Buried
Tujunga Oil Co.	1	Buried

4.0 Recommendations to the Board

This cumulative and final report provides documentation on the methodology, health screening, and presents the findings of the field site audits of the facilities reviewed by this Project. One component of the Project is for Staff to provide recommendations to the Board on the following:

- legislative positions;
- regulatory positions;
- legal positions as necessary; and
- other facilities that may benefit the County by undergoing a similar review.

Staff have followed recent actions by other jurisdictions and agencies during the Strike Team effort and preparation of the three Project reports and advises the Board to allow for legislative updates as they relate to oil and gas operations as noted in Section 4.1. The primary regulatory recommendation derived from the implementation of the Strike Team Project is the preparation of a revised County Zoning Code for oil and gas operations to bring the regulatory framework up to date with existing oil and gas operations and new technological advances and extraction methods. This update was recognized as one of the overall goals of the Strike Team by the Board in its motion, and the need to gain thorough knowledge of the existing oil and gas operations in the unincorporated area of the County of Los Angeles is the initial first step towards a revised County Zoning Code for oil and gas operations.

Staff recommends a review and update to the County Zoning Code for oil and gas facilities and further recommends the updated Zoning Code include requirements to address issues noted during the Project site inspections and document review; these suggestions are presented in Section 4.2. Legal positions are discussed in Section 4.3. Section 4.4 discusses recommendations for other facilities to be evaluated based on Project research and the site visits completed to date. Recommendations from the public and the Strike Team Advisory Panel for future review efforts are provided in Section 4.5.

4.1 Legislative Review

Recent legislative actions of note regarding oil and gas operations include:

California Senate Bill 4 – In 2013, the California Legislature passed Senate Bill 4 (SB 4), setting the framework for regulation of hydraulic fracturing and acid stimulation technologies in California. Well stimulation enhances oil and gas production by making the reservoir rocks more permeable, thus allowing more oil or gas to flow to the well. To create a hydraulic fracture, an operator increases the

pressure of an injected fluid in an isolated section of a well until the surrounding rock breaks, or "fractures." Sand injected into these fractures props them open after the pressure is released. The second type is "acid fracturing," in which a high-pressure acidic fluid fractures the rock and etches the walls of the fractures, so they remain permeable after the pressure is released. The third type, "matrix acidizing," does not fracture the rock; instead, acid pumped into the well at relatively low-pressure dissolves some of the rock and makes it more permeable.

Public concern about the health and environmental effects of fracking resulted in the California Legislature passing of Senate Bill 4, the most comprehensive fracking law in the nation. Governor Jerry Brown signed it into law on January 1, 2014.

The law requires drillers to apply for permits for any well activity used to stimulate greater production from a well, whether by fracking or acid. The application must include the location and time of the proposed well treatment, a list of all chemicals to be used, the source of the water used and a plan to monitor groundwater in the area for possible contamination. Notices of the proposed activities are publicly disclosed on the DOGGR website. Property owners near the site must also be notified within 30 days of the activity.

Within 60 days of completing a fracking operation, drillers must disclose the source and amount of water used and the chemicals in the fracking fluid. They must also disclose how much water was recovered, test the wastewater and report all chemicals detected. This information is publicly available in the Well Stimulation Public Disclosure Report, which is posted and regularly updated on the DOGGR website.

SCAQMD Rule 1148.2 – The rule by the South Coast Air Quality Management District (amended in 2015), requires that operators electronically notify the SCAQMD prior to the start of drilling, well completion or re-work of an onshore well and specify the distance to the nearest sensitive receptor as well as information on the chemicals proposed to be used. This information is then posted on the SCAQMD website.

City of Carson Code – In 2016 the City of Carson adopted a new oil and gas code to address existing and proposed oil and gas operations in the city. The Code is organized into three Parts and covers all aspects of operations from "cradle to grave" as follows:

- Part 1 (Administrative Procedures) identifies where operations may occur, and what approvals are necessary for the types of operations. For example, new development in residential and other areas are completely banned, all other areas require conditional use permits or development agreements are required (complete with a public review process), facility closure and abandonment is regulated, insurance and bonding requirements are imposed, and monitoring and enforcement procedures (including substantial fines and penalties, etc.) are established.

- Part 2 (Development Standards for Petroleum Operations) establishes how the sites may be operated. For example, not only is new development banned in residential areas, the General Update prohibits new operations within 1,500 feet and 1,000 feet of sensitive uses unless they can comply with a variety of requirements, including an odor minimization plan, air monitoring plan, community alert system, quiet mode operations plan, photometric analysis (lighting and glare), etc. Under no circumstances can these uses be closer than 750 feet from sensitive uses. Additionally, this Part

addresses lighting, aesthetics, water quality (including groundwater), air quality, greenhouse gas, inspection and monitoring, safety standards, and other items.

- Part 3 (Development Standards for Site Abandonment and Redevelopment) addresses conditions under which a site must be assessed and remediated prior to redevelopment of a current oil or gas site. This includes leak testing, inspections, ensuring all wells are properly abandoned and recording of documents on the property to give notice to future owners and occupants of the land's prior use as an oil or gas site, results of testing, etc.

SCAQMD Rule 1180 – Fence line monitoring for refinery operations. Currently the South Coast Air Quality Management District (SCAQMD) is developing a new set of regulations to require fence line monitoring for oil and gas refineries. Following a recent federal EPA's Fenceline Monitoring Rule, all refineries are required to monitor and report levels of benzene around their fencelines. Benzene is being monitored as a surrogate for all fugitive emissions of Hazardous Air Pollutants (HAPs). The Bay Area Air Quality Management District (BAAQMD) also has a similar rule requiring petroleum refineries to conduct fenceline monitoring. The Rule 1180 would expand the federal requirements to include a range of chemicals and to allow for real-time results and online access to data by the public. Ultimately, fenceline monitoring can be used to identify leaks and unintended or accidental releases at any facility if the same technologies are applied, not just refineries, and could alert communities of potential health and safety issues. It can also be used to determine the levels of pollutants being emitted by facilities and subsequently come up with mitigation to reduce those emissions.

OSPR Inland Oil Spill Contingency Plans – In July 2014 Governor Brown and the California Legislature expanded the Office of Spill Prevention and Response (OSPR) program to address oil spill planning for all surface "waters of the state" at risk from oil spills. Thus, certain Inland Facilities such as pipelines, production facilities, refineries, and railroads must file an oil spill contingency plan with OSPR for review and approval, and must also make a demonstration of financial responsibility for a potential oil spill.

In the fall of 2016, the emergency regulations were finalized through a formal rulemaking process. In the future, OSPR intends to merge the inland components with the long-existing marine components, to form an integrated statewide oil spill preparedness and response program.

SB724, Oil and gas wells and production facilities – This bill is currently moving through the legislature. Under current law, DOGGR regulates the drilling, operation, maintenance, and abandonment of oil and gas wells in the state. State law further requires DOGGR to supervise the drilling, operation, maintenance, and abandonment of wells and the operation, maintenance, and removal or abandonment of tanks and facilities related to oil and gas production within an oil and gas field, Moreover, existing law requires the operator of a well to file a written notice of intention to commence drilling with, and prohibits any drilling until approval is given by DOGGR; the notice is deemed approved DOGGR fails to respond to the notice in writing within 10 working days from receipt and is deemed canceled if operations have not commenced within one year of receipt. This bill would extend the time period to commence operations from 12 to 24 months before the notice is required to be deemed canceled, and would prohibit the notice from being extended.

Existing law authorizes a city or county to request from DOGGR a list of those wells within its jurisdiction that have not continuously produced oil or natural gas, or have not been utilized continuously for injection purposes for a 6-month period during any consecutive 10-year period prior to or after January

1, 1991. This bill instead would authorize a city or county to request from the supervisor a list of all idle wells, as defined, within its jurisdiction.

Current law authorizes DOGGR to order the plugging and abandonment of a well that has been deserted independent of whether or not any damage is occurring or the well represents a threat to the environment. This bill would additionally authorize DOGGR to order the decommissioning of an attendant production facility of a well that has been deserted. Because a violation of an order issued under these provisions would be a crime, the bill would implement a State-imposed local program.

Existing law authorizes DOGGR to order certain operations to be carried out on any property in the vicinity of which, or on which, is located any well that DOGGR determines to be either a hazardous or idle-deserted well, as specified. Existing law prohibits the division from expending, commencing with the 2015–16 fiscal year, more than $1,000,000 in any one fiscal year for these purposes related to hazardous or idle-deserted wells. SB 724 would:

- Expand this authorization to allow DOGGR to order or undertake certain operations, as applicable, to be carried out on any property in the vicinity of which, or on which, is located any well or facility that DOGGR determines to be a hazardous well, an idle-deserted well, a hazardous facility, or a deserted facility, as defined;
- Raise the cap on spending for these purposes from $1,000,000 to $5,000,000 in any one fiscal year;
- Require the division to provide certain information regarding those wells and facilities to cities and counties upon request;
- Authorize a city or county to apply to DOGGR to enter into a contract with to either receive funds to reimburse a city or county for its costs related to plugging and abandoning a well and decommissioning production facilities, or for the division to conduct work related to plugging and abandoning a well and decommissioning production facilities, as specified;
- Prohibit DOGGR, on or after July 1, 2018, from commencing any activity to plug and abandon a well or decommission a production facility within the jurisdiction of a city or county without entering into a contractual memorandum of understanding with the city or county, except as provided;
- Require DOGGR to report on October 1, 2019, to the Legislature on the estimated number of orphan wells, hazardous wells, idle-deserted wells, deserted facilities, and hazardous facilities remaining, the estimated costs of abandoning or decommissioning those wells and facilities, and a timeline for future well abandonment and decommissioning of facilities with a specific schedule of goals; and
- Require the department to provide the Legislature with an update to this report on October 1, 2022, containing specified information.

SB 773 Oil and gas well records – Introduced February 17, 2017; awaiting referral. Existing law requires DOGGR to regulate the drilling and operation of wells used for the purpose of producing oil and gas and requires an owner or operator of a well to keep an accurate log, core record, and history of the drilling of the well. SB 773 would provide that it is the policy of the state that information sufficient to competently and completely characterize each well, including after plugging and abandonment, be maintained by the state and would require the Supervisor to ensure compliance with this policy.

California Air Resources Board (CARB) Greenhouse Gas Emission Standards – Regulation for greenhouse gas emission standards for crude oil and natural gas facilities, approved in July 2017 with effective regulation date of October 1, 2017.

Staff suggests the Board is regularly updated on State, County, City, and associated jurisdictional agency actions as they relate to the oil and gas industry.

4.2 Recommendations for Updated County Zoning Code

Staff recommends review and update of the existing County Zoning Code for oil and gas facilities to bring it in line with surrounding sensitive land uses and current technological advances and to bring it up to today's standards as stated above. In addition, Staff has identified specific recommendations for an update based on the site inspections and the document reviews completed for the Project. These recommendations are in addition to components of oil codes already adopted by existing jurisdictions, such as the City of Carson and the existing Baldwin Hills Community Standards District for the Inglewood Oil Field. The recommendations address issues or potential impacts that are not components of current codes or regulatory requirements. The recommendations along with the analysis or issue identified for the recommendation is summarized in the table below. It is expected that during the review and development of a Zoning Code update, additional requirements may be identified and reviewed for inclusion.

Oil Code Recommendation	Analysis/Issue
Removal of by right permitting	As required by the Board, the new code would include discretionary approval for oil and gas wells and removing the current allowance by right. Implementation of discretionary approval provides for the requirement of project specific mitigation measures and permit requirements.
Setback distances	The updated code should require that wells and associated facilities have a sufficient buffer zone from residential and other sensitive land uses. This would be determined based on health risk, air quality, noise, odors, aesthetics and other environmental, health and safety, and public nuisance considerations. An incentive program could be developed as part of the new code to encourage oil and gas producers to plug and abandon facilities within the new setback.
Well stimulation techniques	An updated code should address recent development in well stimulation and completion techniques. The code would reference recent SB 4 adopted regulations to be consistent with the State's DOGGR rules.
Air quality monitoring	An updated code should include requirements for monitoring to document that offsite air quality impacts are within applicable standards and to take measures to reduce impacts as appropriate.
Odor plan/monitoring	An updated code should include plans to monitor potential odors and include mitigation as applicable. Requirements would likely include the preparation of Odor Minimization Plans under specific circumstances, for all existing or proposed oil and gas facilities within a certain distance of sensitive receptors.
Down hole chemical use (Chemicals pumped down the well during drilling, maintenance or production activities)	These chemicals are not currently included in Hazardous Materials Business Plans due to the short-term use and temporary storage at oil fields. An updated code should require the tracking of the volumes and use of these chemicals and provide guidelines for

Oil Code Recommendation	Analysis/Issue
	storage, transportation and usage to prevent spills or releases into the environment.
Transportation of chemicals through residential areas	Transportation of chemicals should be routed away from neighborhoods as feasible. The updated code should contain requirements for specific transportation routes for certain chemicals as appropriate to protect the health and safety of residents and to route chemicals away from residential areas where feasible.
Pipeline systems monitoring and leak detection	Monitoring and leak detection systems should be used for pipelines near residential and other sensitive land uses. Currently, there are a variety of regulations at the state and federal level, but local oversight is limited. This addition to the code would allow for requirements for pipeline maintenance, integrity testing, and leak detection systems.
Gas gathering systems operated under a vacuum	Operation of gas gathering systems with pipelines operating under vacuum can prevent odor and other nuisance releases for facilities located near residential or other sensitive uses, and provide for rapid identification of leaks and operating irregularities. The updated code should contain provisions to address this issue.
Well site berms	Well site berms provide tertiary containment in the event of a leak but are not currently required by State regulations. Well site berms in the County range from no berm to dirt or gravel berms to concrete/cinder block walls. Regulations for non-permeable material berms could provide consistent tertiary containment for leaks and spills.
Well cellar size, volume, and depth	Well cellars with sufficient depth and volume can provide secondary containment in the event of a leak from well equipment. Well cellars in the County range from no capacity to concrete vaults with significant capacity. The updated code should provide for well cellars with sufficient volume provide consistent secondary containment for leaks and spills.
Fire water supply and monitors	Many facilities do not have a fire water supply or system and require assistance from County Fire in the event of an incident as allowed by the Fire Code. The addition of on-site fire water and or monitors would assist County Fire in incident response.
Abandonment of long idle wells	DOGGR regulations encourage abandonment of idle wells not planned for future use. Local regulations as provided in an updated code could provide local oversight of well abandonment activities in advance of State requirements.
Review of Emergency Response Plans	ERPs are reviewed by County Fire as applicable. Requiring review of ERPs in a code update should allow for other County agencies, including DRP, to become familiar with emergency incident response and allow for coordination with other area current and future projects.
Decommissioning and removal of out of service equipment	Oil fields, due to the long ongoing operations that are part of the industry, can contain and accumulate significant volumes of unused equipment and trash. Requirements for cleanup could improve aesthetics at oil and gas sites.
Storm water discharge handling with spills, drain valves control	The potential exists for storm water systems to discharge oil in the event of a spill during a precipitation event. Requirements in an updated code for drain valves and other control systems could help prevent offsite discharge of contaminated water.

Oil Code Recommendation	Analysis/Issue
Secondary containment	Secondary containment types for tank farms, vessels, and other oil and gas infrastructure in the County range from dirt berms to concrete cinder block walls. Requirements in an updated code for secondary containment systems made of non-permeable materials could provide consistent protection from leak and spills.
Community Communication	The updated code should require oil and gas facilities to prepare a community communication plan for residents within a certain radius. The plan should include conditions requiring notification, methods of notification and information on hazardous materials, conditions, or operations that may otherwise impact the health and well being of nearby residents.

4.3 Legal Positions

Staff has no recommendations with regard to legal positions as of the date of this report.

4.4 Recommendations of Other Facilities to be Evaluated

Associated Oil and Gas Facilities Outside County Jurisdiction

With 88 incorporated cities located within Los Angeles County, oil and gas fields may cross jurisdictional boundaries, wells may be associated with processing facilities located in an adjacent County or City, or oil from wells located outside the County may enter the County by pipeline or tanker truck. For example, as noted in Section 3.0, for the Matrix Sansinena, Linn Energy, CRC, Brea Canon, and Breitburn Rosecrans operations, some produced oil or gas is transported by pipeline to a processing facility located outside the unincorporated County of Los Angeles jurisdiction in adjacent jurisdictions.

Therefore, staff recommends, on a case by case basis, that the Board consider review of relevant oil and gas facilities located outside unincorporated County jurisdiction under the parameters of the Project. Specifically, as discussed above, staff recommends that the County consider contacting the following jurisdictions to discuss Strike Team review of the oil and gas processing facilities under their oversight:

- City of La Habra Heights (Matrix Sansinena wells);
- Orange County (Linn Energy wells);
- County of Ventura (CRC Del Valle and Ramona Field wells); and
- Harbor City (Brea Canon wells);
- City of Gardena (Breitburn Rosecrans).

This item is also in support of the recommendation for outreach to surrounding jurisdictions as identified by the Board. The ultimate goal would be to provide guidance to the adjacent jurisdictions on their own oil and gas regulatory frameworks to ensure that citizens in adjacent communities (and in the unincorporated areas adjacent to those communities) are protected to the same levels established in the new oil and gas code.

Oil and Gas Pipelines

The two primary methods for transportation of oil and gas are by pipeline and by truck, with pipeline transport being the preferred method for a variety of environmental reasons. Several counties in California, such as Santa Barbara County, have promulgated oil transportation policies requiring certain

new projects to use pipeline for the transportation of oil. Offsite transportation of oil by pipeline in California is regulated by the Department of Transportation (DOT), with the jurisdiction delegated to the State Fire Marshall in most areas including Los Angeles County. Staff has identified certain criteria which may trigger a recommendation for including an oil or gas pipeline for Strike Team review including:

- High-pressure pipelines;
- Pipelines containing sour gas;
- Pipelines that are routed through residential neighborhoods or other sensitive land uses; and
- Pipelines with a documented history of environmental or safety issues.

Staff has not identified any specific pipelines for further review at this stage of the Project; recommendations may be included in future reports as appropriate. However, staff is recommending adding regulations to the new oil code to address potential gaps in oversight of pipelines by the state and federal governments as stated above.

Orphan and Abandoned Wells

These types of wells are not addressed in the scope of this Project; however, during the research and review of well data for this Project, information on the ownership, status, and documentation on the abandonment details for many of these wells appeared to be incomplete. As an example, DOGGR record may not show the exact locations of some of these wells, and in other cases there may be no knowledge of the well until it leaks or it is encountered accidentally during a construction project. Therefore, staff recommends that these types of wells be considered for review in a future project.

Other Industrial Uses Related to Oil and Gas

As discussed at the initial Advisory Panel meeting, the chemicals used for drilling and well maintenance activities may not be reflected in a facility's hazardous materials business plan or inventory; this is due to the fact that the use is short term and that chemicals are typically brought on-site on a job by job basis. Chemical use associated with well drilling is addressed by SCAQMD Rule 1148.2. As noted in Section 4.2, Staff recommends that any update to the County Code for oil and gas operations include regulations that address the disclosure of the type of chemicals used and transport of those chemicals to well sites located in the County, in coordination with the SCAQMD rules.

4.5 Additional Task Recommendations

In addition to the recommendations for a future oil and gas zoning code update and the suggestions for other facilities that may benefit from a review similar to this Project, the Strike Team and members of the Strike Team Advisory Panel provide the following proposals for future projects.

Interview Community Members

Coordination with the public and residents of the neighborhoods that are located in proximity to oil and gas wells and the associated facilities was not part of the scope of the Project. It is recommended that future efforts involve obtaining input from community members to provide data on potential nuisance issues and neighborhood concerns. This can be done under the context of the preparation of the updated oil code by having stakeholder meetings in areas surrounding existing oil and gas facilities.

Environmental Review Procedures

The County DRP follows established project review and permit processing procedures as codified in the County Zoning Ordinance along with the guidelines in the County General Plan, Community Plans and other associated planning documents. Discretionary projects are also subject to review under the requirements of the California Environmental Quality Act (CEQA). Given the unique nature and potential impacts of oil and gas projects, it is recommended that any future project complete an evaluation of the environmental review procedures for oil and gas projects in the County to determine if the process can benefit from updated methodology or inter-departmental or inter-agency coordination ideas.

5.0 Conclusion

This report was completed pursuant to the Board's March 2016 motion and with the goals as discussed in this report. The *Well Inspection Protocol, Facility Checklist*, *Well Checklist, and Public Health Screening Checklist* provided staff with applicable tools to perform the site inspections and to document the infrastructure and compliance of the oil and gas facilities of interest for this review. This report is the third and final update of three biannual reports on the Project. As part of the Board of Supervisors' motion, staff was asked to create an inventory of oil and gas facilities to evaluate compliance with existing permits, to review emergency response plans, to conduct onsite visits and safety audits in order to prioritize sites for further action as described in a series of Progress Reports to be submitted to the Board. Information was gathered on land use, zoning, nearby sensitive land uses, existing permits, and facility operations. This report documents the Strike Team findings that the oil and gas wells in the unincorporated County require improvement in several areas with regard to safety and potential impacts to the environment, but that facilities are operating generally consistent with County land use permits, SCAQMD, DOGGR and other regulations. The findings are detailed in this report as recommendations for compliance or improvements to public health or safety and include the following:

- Well work requirements procedures;
- Loading rack procedures and safety signage;
- Sufficient secondary containment at loading rack stations;
- Berming of well sites adjacent to hills sides or other sensitive uses for tertiary containment;
- Repair or improvement of secondary containment at tank farms;
- Installation of signage pursuant to SCAQMD odor requirements;
- Weed abatement;
- Repair of fencing; and
- Removal of un-used equipment and out of service tanks.

The Strike Team also completed a Public Health and Safety Assessment for each of the facilities inspected. The field data, including the facility and well inspection checklists were used to screen the facilities to determine those which may produce a public health and safety impact and would therefore be recommended for more detailed public health and safety assessments. The Health and Safety Assessment concentrated on four high priority public health risk items; land use and zoning, hydrogen sulfide, well head pressures, and historical activities with the results documenting several facilities with

high risk for one of the four priority items. The following facilities ranked high in one of the 4 categories for risk due to their close proximity to residences.

- Brea Canyon - Torrance Field
- PCEC Dominguez - Dominguez Field
- Breitburn - Rosecrans and Rosecrans South Fields
- Linn - Brea Olinda Field
- Power Run - Rosecrans South and Howard Townsite Fields

The Brea Facility ranked as a high risk for spills due to the close proximity of pipelines to water receptors.

Future Efforts

The Department of Regional Planning (DRP) will also prepare a zoning code update to ensure that oil and gas facilities may no longer be permitted to operate "by-right" in the unincorporated portions of the County, and conduct outreach to local jurisdictions interested in collaborating on the development of regulatory requirements or protocols for monitoring and evaluating their local oil and gas facilities.

While the Strike Team has made substantial progress in achieving the above-mentioned goals of the motion, substantial efforts are proposed to be continued in 2018 as follows:

The effort envisioned for 2018 would include DRP's preparation of the oil and gas ordinance and would encompass the following:

- Inclusion of an update to the County Zoning Ordinance and associated regulations to reflect current mitigation methods and technologies to environmental impacts from oil and gas operations;
- Review the need for an Oil and Gas Element to the County General Plan that specifically targets those operations and their impact to the 2035 General Plan update;
- The creation of a program within the Land Use Regulation Division to continually ensure monitoring and compliance for all oil and gas facilities including a mechanism for coordination with other County and State agencies to coordinate the regulatory framework of oil and gas operations. This would also include mechanisms to ensure that public health and safety is protected in all cases; and
- A review of the DOGGR Renewal Plan on oil and gas well regulation at the State level to determine how the oversight coordinates with current and future County oversight.

In addition, as part of the ongoing effort, a number of issues were identified above as requiring further review and oversight. Those considered most salient are described below:

- Orphan/abandoned wells. There is a number of orphaned and abandoned wells throughout the County that have deficient records and mapping from the DOGGR database and are periodically found either through new construction or through potentially unsafe leaks generated by improper plugging and abandonment. A number of these wells were plugged and abandoned prior to existing regulations and by operators who may now be defunct or no longer in operation. This effort would include identifying existing orphaned and abandoned wells within

the unincorporated Los Angeles County, creating a priority list based on potential health and safety concerns and ascertaining a path forward to address these wells in the near future;

- Pipelines. Offsite transportation of oil by pipeline in California is regulated by the Department of Transportation (DOT), with the jurisdiction delegated to the State Fire Marshall in most areas including unincorporated Los Angeles County. Staff has identified certain criteria which may trigger a recommendation for including an oil or gas pipeline for Strike Team review including: high pressure pipelines; pipelines containing sour gas; pipelines that are routed through residential neighborhoods or other sensitive land uses; and pipelines with a documented history of environmental or safety issues. Pipelines are also not locally regulated, and there has been a number of leaks that could be prevented with close oversight. Additional recommendations would be developed on regulations to improve the local oversight of existing pipelines, including the appropriate mechanism to regulate them within the new oil code;
- Storage facilities. Storage facilities in the oil and gas industry have historically leaked crude products during many years of operations, and substantial damage has occurred as a result of subsequent residential uses being placed in previously contaminated areas. Such is the case with the Carousel Tract in the City of Carson, where residences were built on top of areas previously occupied by leaking storage tanks. This has generated chronic health problems among residents and created the need to remediate the site after the fact with the corresponding logistical complications. DRP will include in the new oil code a regulatory framework to address storage facilities both existing and proposed. The updated code would include a protocol for leak inspection and detection and existing areas of concern would be identified along with remediation strategies and clean up goals; and
- Other Industrial uses: DRP will work with the Strike Team in identifying other industrial facilities within the unincorporated County and surrounding communities that may merit additional oversight and review. Such facilities could include other gas storage facilities within the County (to prevent gas releases such as Aliso Canyon), industrial operations that may result in health and safety impacts to the surrounding community (such as the Exide Battery plant and any other facilities that may present an unknown risk to the residents of the County). As part of this effort, the Strike Team would conduct Risk Analysis to assess the level of risk that could exist from these facilities and the types of potential mitigation that could be used to remedy potential risks.

Appendix A: Los Angeles County Oil and Gas Well Inventory Report

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Appendix B: Well Inspection Protocol

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Appendix C: Facility Checklist

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Appendix D: Well Inspection Checklist

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Appendix E Health Screen

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Appendix F Matrix Sansinena Checklist

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Appendix G Termo Aliso Canyon & Oat Mountain Checklist

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Appendix H Termo Oak Canyon Checklist

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Appendix I Linn Energy Checklist

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Appendix J California Resources Company (CRC) Checklist

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Appendix K Crimson Resource Management (CRM) Checklist

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Appendix L Brea Canon Checklist

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Appendix M Breitburn Operating Checklist

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Appendix N Watt Companies Checklist

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Appendix O Matrix Whittier Checklist

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Appendix P Breitburn Operating Sawtelle Dominguez Checklist

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Appendix Q LBTH Inc. Checklist

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Appendix R Anterra Services Checklist

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Appendix S Jean Martinez Checklist

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Appendix T Power Run Oil Checklist

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