Inglewood Oil Field – 2021 Abandoned Well Testing Report

Los Angeles County, California

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SCS ENGINEERS

Project No. 01219202.00 | January2022

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This Abandoned Well Soil Gas Investigation report dated January 2022 for the Inglewood Oil Field located in the Baldwin Hills area of Los Angeles County was prepared and reviewed by the following:

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DISCLAIMER

This report has been prepared for the exclusive use of Sentinel Peak Resources and pertinent regulatory agencies. Unauthorized use of or reliance on the information contained in this report by others, unless given the express written consent by SCS Engineers, is prohibited.

The conclusions and recommendations presented in this report are professional opinions based on the data acquired during this monitoring event. This report has been prepared in accordance with generally accepted methodologies and standards of professional practice in the subject locale at the time the work was performed. No other warranties, express or implied, are made.

1 INTRODUCTION

SCS Engineers (SCS) was retained by Sentinel Peak Resources California LLC (SPR) to conduct annual soil gas methane monitoring at the Inglewood Oil Field located in the Baldwin Hills area of Los Angeles County. Investigation activities were conducted in accordance with SCS' proposal dated September 20, 2021 (Proposal No. 010890221). A map showing the location of the Property is provided as **Figure 1**.

2 GENERAL BACKGROUND

The Inglewood Oil Field (the"Field"), located in the Baldwin Hills area of Los Angeles County (Figure 1) has been in operation for over 85 years with over 1,600 wells having been drilled during that time throughout the historical boundaries. On October 28, 2008, the Los Angeles County Board of Supervisors adopted the Baldwin Hills Community Standards District (CSD) amendment to the Los Angeles County Zoning Code and established additional development standards and operating procedures for the oil and gas production operations at the Field.

SPR currently owns and operates the Field in the Baldwin Hills Zoned District of Los Angeles County. Oil and gas exploration and production in the Field includes approximately 1,463 active, idle, and abandoned wells within the current surface lease boundary. Previous owners/operators include Chevron, Stocker Resources, Plains Exploration and Production Company (PXP), and Freeport McMoran Oil & Gas (FMOG).

Existing operations of the Field involve extracting oil and gas from subsurface reservoirs located between 800 and 10,000 feet below ground surface (bgs), as well as, the removal of water and liquids from the crude oil and gas. The crude oil is transported through pipelines to Southern California refineries to be processed into gasoline and other products. The gas is transported by pipeline to the SoCal Gas Company for use by consumers and industry or is shipped to refineries for processing.

Annual soil gas methane monitoring at the Inglewood Oil Field is required by the County of Los Angeles, Title 22, Department of Regional Planning, Section 22.310.050, Part FF (formerly Section E.32 of the CSD), which states:.

"Abandoned Well Testing. The operator shall conduct annual hydrocarbon vapor testing of areas within the oil field that contain abandoned wells. The testing shall be done using a soil gas vapor probe, or another method approved by the director. The results of the testing shall be submitted to the director and DOGGR [State of California Division of Oil, Gas, and Geothermal Resources] on an annual basis. Abandoned wells that are found to be leaking hydrocarbons that could affect health and safety shall be reported to the director and DOGGR within 24 hours of the abandoned well test. If directed by DOGGR, the operator shall re-abandon the well in accordance with DOGGR rules and regulations. If the test results for an abandoned well area are at or below the background levels for two consecutive years that area shall thereafter be tested every five years."

Soil gas monitoring of the area of abandoned wells has been conducted annually since the adoption of the CSD amendment. Results of the sampling were compared to the regulations and requirements of the City of Inglewood, LA County Department of Public Works, LA County Fire

Department, the California Code, and the South Coast Air Quality Management District (SCAQMD) in reports submitted to LA County and the California Geologic Energy Management Division (CalGEM),

formerly known as DOGGR. The reports completed from 2014 through 2019 concluded that there is no evidence of leaking or natural seepage from abandoned wells at the oil field.

A Hydraulic Fracturing Study of the Inglewood Oil Field, conducted by Cardno ENTRIX (Cardno; Cardno, 2012) states "Background soil gas methane concentrations throughout Southern California are typically 50 parts per million by volume (ppmv) or less, although in Los Angeles certain areas are known to have higher background concentrations and have been identified on City Methane Zone Maps." In 1986, Geoscience Analytical, Inc (GAI) conducted a study at the Inglewood Oil Field. During the GAI study 31 soil gas samples were collected and analyzed for C_1-C_7 hydrocarbons and hydrogen sulfide. Based on the results, GAI concluded that the soil gases detected in the oil field were likely of a biogenic source through bacterial decomposition of crude oil in the near surface soils rather than a petrogenic source, such as natural gas releases from the oil field or associated oil wells.

OTHER REGULATORY AND SAFETY CONSIDERATIONS

According to CalGEM Publication PRC10, Article 4.1, dated January of 2018, the following two statutes/regulations are applicable to abandoned wells:

- "The supervisor, in cooperation with appropriate state and local agencies, shall conduct a study of abandoned oil and gas wells located in those areas of the state with substantial for methane and other hazardous gas accumulations in order to determine the location, the extent of methane gas and other hazardous gas accumulations, and potential hazards from the abandoned wells."
- "The supervisor, in cooperation with appropriate state and local agencies, shall develop a strategy for extracting existing accumulations of methane gas and other hazardous gas from abandoned oil and gas wells in high-risk areas identified by the supervisor in order to protect the health and safety of the public. The strategy shall also provide plans for the management of methane gas and other hazardous gas from wells in the high-risk areas where no accumulations are discovered in order to prevent future accumulations of methane gas and other hazardous gas."

The California Code of Regulations (CCR), Subchapter 18, states "*Atmospheres with a concentration of flammable vapors at or above 10 percent of the LEL (Lower Explosive Limit) are considered hazardous when located in confined spaces*."

CCR, Subchapter 17, Section 95471 regulates methane surface concentrations at landfills as follow:

- "Owner or operator must record any instantaneous surface readings of methane 200 ppmv or greater, other than non-repeatable, momentary readings."
- "Surface areas of the landfill that exceed a methane concentration of 500 ppmv must be marked and remediated pursuant to section 94569 (a) (1)."

According to NIOSH and the American Conference of Governmental Industrial Hygienists (ACGIH), the Time Weighted Average (TWA) for methane is 1,000 ppmv over an 8-hour work period. According to NIOSH, methane can be an acute hazard due to being extremely flammable, explosive and a potential asphyxiant. Therefore, confined spaces and areas of potential accumulation, such as within buildings, can be of significant concern.

In the California Department of Toxic Substance Control (DTSC) guidance *Evaluation of Biogenic Methane,* (March 28, 2018), an acceptable methane gas concentration of 500 ppmv was established for indoor air. For methane in soil gas, an acceptable level can be calculated using site-specific information including pressure, as "only pressurized methane soil gas can achieve explosive concentrations in building space…" For example, a methane soil gas concentration of 5,000 ppmv would require a soil gas pressure of 2,000 inches of water (i.w.) to intrude into indoor air resulting in a concentration of 500 ppmv; for methane soil gas concentration at 1,000,000 ppmv (100%) a pressure of only 10 i.w. would be required to have the same effect resulting in 500 ppmv in indoor air.

The County and City of Los Angeles have established building codes as a means to control methane hazards for the development or remodeling of buildings near abandoned wells and landfills. These requirements are for the protection of new buildings or structures and are not applicable at this time.

Other than the potential hazards associated with methane gas accumulation and the CalGem requirements, there do not appear to be any specific soil gas screening levels for methane except for those under development.

3 SITE INVESTIGATION AND ANALYTICAL RESULTS

SUBSURFACE UTILITIES CLEARANCE

As required by law, SCS contacted Underground Service Alert prior to conducting any subsurface work (Dig Alert Nos. A212650905, A212650452, A212651004, A212650461, A212650818, A212650801, A212650434, A212650426, A212650813, and A212650816).

SOIL GAS PROBE INSTALLATION

Under the direction of SCS, on September 27 and 30, 2021, H&P Mobile Geochemistry (H&P) installed temporary soil gas probes at eight locations at depths of approximately 5 feet bgs. Soil gas probe locations are depicted in **Figure 2**. Note that, of the 23 probes monitored and sampled during this assessment, 15 probes were installed during previous investigation activities and were considered viable for this sampling event. Temporary probes were installed using a direct-push drill rig, which advanced a steel rod to the target depth. The rods were retracted and probes were installed and constructed using new 1/8-inch diameter Nylaflow tubing, with a stainless steel filter placed on the bottom end. The probe tip was set within a 12-inch sand pack, with a minimum of 6 inches of dry bentonite above the sand. A hydrated bentonite seal was placed in lifts above the sand to the ground surface. The Nylaflow tubing, which extended from the surface, was fitted with an airtight valve.

During probe installation activities, boreholes were continuously cored. Recovered soils were logged for lithology using the Unified Soil Classification System (USCS), visually observed for possible hydrocarbon impacts, and screened in the field for methane using a Landtec GEM 5000 combustible gas meter.

Lithology encountered from surface to depths of 5 feet bgs were primarily sands and silty sands with occasional gravel and some clay. Sands were fine to coarse grained. Soil often appeared compacted and dense to hard. Soil coloration ranged from light to dark brown, light to dark grey, greenish grey, and black. Indications of hydrocarbon-impacted soil was noted at probe locations VRU 266 and BC 321. Boring logs are provided in **Appendix A.**

Sampling locations were located within 50 feet of previously-abandoned wellhead locations per the coordinates provided below.

SOIL GAS SAMPLE COLLECTION

Abandoned well testing has been conducted at the Inglewood Oil Field annually since 2009 in accordance with Section E.32 of the Baldwin Hills CSD amendment. Historical summaries through the most recent 2019 report of the Inglewood Oil Field abandoned well testing program can be found on the CSD Related Plans section of the Inglewood Oil Field website. The list of abandoned wells requiring sampling as part of this event provided by SPR consisted of:

Map ID	Abandoned Well Name	Year 2021	Basis	Latitude	Longitude
3	STK 3	Resample	SPR	33.9934444	-118.3596444
5	BC 321	Scheduled	SPR	33.9979222	-118.3646667
7	LAI 1-268	Resample	SPR	33.9956472	-118.3665861
11	LAI 1-62	Resample	SPR	33.9935972	-118.3665222
12	LAI 1-235	Resample	SPR	33.993975	-118.3683222
13	LAI 1-171	Scheduled	SPR	33.9976444	-118.3682806
15	LAI 1-206	Scheduled	SPR	33.999225	-118.3692556
16	BC 12	Scheduled	SPR	33.9994583	-118.3666667
17	BC 14	Resample	SPR	34.001725	-118.3667833
18	LAI 1-37	Resample	SPR	34.0022278	-118.3673944
20	BC 41	Resample	WS	33.9976972	-118.3617556
22	BC 22	Scheduled	SPR	34.0008472	-118.3636694
24	BC 53	Resample	SPR	33.998625	-118.3596444
31	LAI 1-8	Resample	SPR	34.0031694	-118.3695861
32	LAI 1-27	Resample	SPR	34.0003639	-118.3701972
36	VRU 186	Resample	WS	34.0071417	-118.3715306
37	VRU 266	Resample	SPR	34.006289	-118.372753
45	LAI 1-166	Resample	SPR	33.9930028	-118.3656139
58	WRZU 312	Scheduled	SPR	34.0081417	-118.3757528
67	Vickers 1-105	Resample	SPR	34.0064167	-118.3776972
79	VRU 125	Scheduled	SPR	34.0093917	-118.3777917
81	T-VIC 70	Resample	SPR	34.0138361	-118.383975
90	LAI 1-59	Resample	SPR	34.0012806	-118.3719194

Per SPR, It is estimated that ~90% of the abandon well locations are correct and correlate with WellStar.

Soil gas sampling was conducted in general accordance with the Advisory – Active Soil Gas Investigations, published by the Regional Water Quality Control Board (RWQCB) and DTSC in July 2015 (the "Soil Gas Advisory"). Each soil gas probe was allowed to equilibrate a minimum of two hours prior to sampling. Following the equilibration period, a pressure measurement was collected from each probe. Results of the field monitoring and pressure results is provided in **Appendix C.** Once the pressure measurement was collected the probes were purged to remove ambient air from the sampling system and ensure that the collected soil gas sample was representative of subsurface conditions. A purge of three volumes of the system was used at all but one location as discussed below. Prior to purging and sample collection, a shut-in test was conducted to insure that ambient air was not introduced into the sampling system.

A total of twenty-five soil gas samples (count includes two replicate samples) were collected and analyzed using ASTM D Method 1946-90 and tested for methane, carbon dioxide, oxygen, and nitrogen. The samples were collected into laboratory supplied, certified clean, 400-millileter Summa canisters, which were properly labelled, recorded on a chain-of-custody form, and stored until delivery to the analytical laboratory. Upon completion of sampling activities, the temporary soil gas probes were left in place at each location at the request of SPR.

SOIL GAS ANALYTICAL RESULTS

Samples were submitted to H&P Mobile Geochemistry (H&P) of Carlsbad, California. H&P is certified to conduct the specified analyses. The laboratory report, chain-of-custody documentation, and quality assurance/control (QA/QC) data are included as **Appendix B**. A summary of the analytical results and a comparison to field monitoring results for methane is provided in **Table 1**.

As shown in **Table 1**:

- 9 probes did not contain detectable concentrations of methane.
- 3 probes contained detectable concentrations of methane below 1,000 ppmv.
- 5 probes contained methane at concentrations between 1,000 and 10,000 ppmv.
- 3 probes contained methane at concentrations between 10,000 and 100,000 ppmv.
- 3 probes contained methane at concentrations above 100,000 ppmv.

With the exception of probe BC-41, during the field monitoring all wells were at atmospheric pressure or under vacuum. Probe BC-41 had a positive pressure of 0.5 i.w., however, methane was not detected in either the field monitoring or laboratory analysis results. Field monitoring observations are provided in **Appendix C**.

QUALITY ASSURANCE AND QUALITY CONTROL

A summary of laboratory quality control (QC) findings is presented below. Laboratory analytical reports, with appropriate laboratory quality assurance/quality control (QA/QC) data, are presented in **Appendix B**.

Laboratory QC is conducted as part of the analytical protocol for each method. The QC samples analyzed include method blanks. Method blanks are analyzed to assess the effect of the laboratory environment on the samples. The quality assurance/quality control (QA/QC) portions of laboratory

reports for the September 2021 gas samples did not detect any of the constituents of concern in any of the method blanks.

Replicate samples were collected at WRZU 312 on September 27, 2021 and LAI 1-27 on September 30, 2021. The replicate samples are used as part of the QA/QC program for laboratory analytical results.

No significant quality control issues were identified with respect to the samples submitted for the September 2021 sampling event and therefore, the data are considered viable and representative of conditions in which the samples were collected.

4 DISCUSSION OF ANALYTICAL RESULTS

As shown in Table 1, methane was detected in 14 samples collected from 23 soil gas probes. Twelve of the soil gas samples contained methane at concentrations exceeding 50 ppmv. Concentrations of methane exceeding 50 ppmv at abandoned oil wells are considered a threshold that triggers the requirement for additional monitoring at these locations for two successive years, until such time as methane is detected at concentrations below 50 ppmv.

During this investigation, hydrocarbon odors and staining were observed in soils collected from one (VRU 266) boring advanced in the vicinity of an abandoned well location where methane was detected at a concentration above 1,000 ppmv. Based on observation of soil collected during the installation of temporary probes in September 2021, elevated methane concentrations may be the result of biodegradation of hydrocarbons in subsurface soils rather than a leak from the abandoned oil wells.

Methane was detected at concentrations exceeding 50,000 ppmv (the LEL for methane in air) at locations STK 3, LAI 1-62, LAI 1-166, and Vickers 1-105 during the September 2021 sampling event. Pressure readings collected at these locations during this sampling event were recorded between 0.0 and negative 1.2 i.w. Using the DTSC guidance for evaluating biogenic methane, positive pressure of over 10 i.w. would be required for the concentration of methane detected during this sampling event to result in build-up of methane in confined spaces or buildings. With respect to other regulatory limits, most regulations for methane are associated with the emission of methane to ambient air and/or its accumulation within confined spaces and structures. These regulatory limits do not necessarily apply to this study. Therefore, using the DTSC guidance, the concentration of methane detected during this evaluation are not considered hazardous. In addition to annual monitoring, SPR staff conduct methane sampling and monitoring on an approximate biweekly basis at the four locations with elevated methane concentrations. Readings are collected above ground surface using a combustible gas meter. SPR continues to investigate the cause of the high readings. Additionally, the County ECC is checking these locations with a gas meter during their inspections, which take place approximately every two weeks. During the ECC inspections, methane/hydrocarbons have not been detected at the surface. This information further supports that no hazardous exposure exists at or above the ground surface to field personnel or the local community.

Well abandonment records are on file at SPR and are also available at CalGEM's website; all were abandoned after 1986 according to updated well abandonment standards and verified in the field by CalGEM representatives. Generally, all records indicate that the wells were plugged with concrete from approximately 8 to 10 feet bgs to depths greater than 1,000 feet bgs.

Excavation of abandoned well LAI 1-166 was conducted following the September 2020 monitoring event down and around the capped well head. A vent cone was placed around the sealed well head and a vent pipe was extended to the surface for future monitoring. During this monitoring event, the vent pipe from LAI 1-166 had detectable concentrations of combustible gas at 1,000 ppmv on September 27, 2021 and at 447,000 ppmv on September 30, 2021. A sample was collected from the LAI 1-166 vent pipe for laboratory analysis during the September 30, 2021 monitoring event, results of which identified methane at a concentration of 350,000 ppmv. Prior to these monitoring and sampling events, a sample (and duplicate sample) was collected from the vent pipe at LAI-1-166 on May 12, 2020 for laboratory analysis, as part of an ongoing assessment of methane origin. Both the primary and duplicate sample did not contain concentrations of methane above the laboratory's detection limit of 10 ppmv. The sporadic fluctuations in methane concentrations between monitoring events at LAI 1-166 and LAI 1-62 are not consistent to those that would be anticipated from a deep formation release (i.e. petrogenic source), rather is more indicative of a shallow biogenic methane source that could be influenced by near surface environmental conditions such as fluctuations in temperature, barometric pressures, rain events, etc. A 2012 Technical Memorandum entitled, *PXP Inglewood Oil Field: Subsurface Methane Gas Investigation in the LAI South Lease* (Cardno-Entrix, 2/17/2021 [the 2012 Tech Memo]) was found, which identifies biogenic source gas in the general area of LAI 1-166 and LAI 1-62. This memorandum has been provided in **Appendix E** for reference. Methane has not been detected in near surface monitoring in the area using a flameionization detector, indicating that significant surficial release of methane is not occurring.

Laboratory results are provided in **Appendix B** and field monitoring results are presented in **Appendix C.** A tabulation of soil gas monitoring results at abandoned wells from 2009 to present (2021) and the forecasted schedule for 2022 are provided in **Appendix D.** As shown, the schedule includes locations requiring retesting based on the 5-year testing cycle, as well as wells that require re-testing as referenced in the first paragraph of Section 4, above.

5 CONCLUSIONS AND RECOMMENDATIONS

SCS conducted annual soil-gas methane monitoring at the Inglewood Oil Field on September 27 and 30, 2021. The objective of the soil-gas monitoring was to determine if abandoned wells at the Inglewood Oil Field are found to be leaking hydrocarbons that could affect health and safety.

Based on the analytical results, it is SCS' recommendation that the abandoned well locations with methane detections exceeding 50 ppmv be resampled during the annual soil gas monitoring event in summer 2022.

Twelve of the soil gas samples contained methane at concentrations exceeding 50 ppmv. Soil collected from location VRU-266 had a methane concentrations exceeding 1,000 ppmv in soil gas was also observed to have hydrocarbon staining and/or odors. Methane concentration significantly reduced between this monitoring event and the previous event conducted in 2020, given the field observations and the decrease in methane concentrations it is likely that the potential source of methane may be biogenic (break down of petroleum hydrocarbons in soil) rather than petrogenic (or leaks from abandoned oil wells). Further investigation in this area is recommended to evaluate other possible sources of subsurface methane.

An update to the 2012 Tech Memo is in process to verify, update, and substantiate its findings and further evaluate subsurface methane concentrations identified during previous testing and monitoring events conducted in the area of LAI 1-166 and possibly LAI 1-62.

6 REFERENCES

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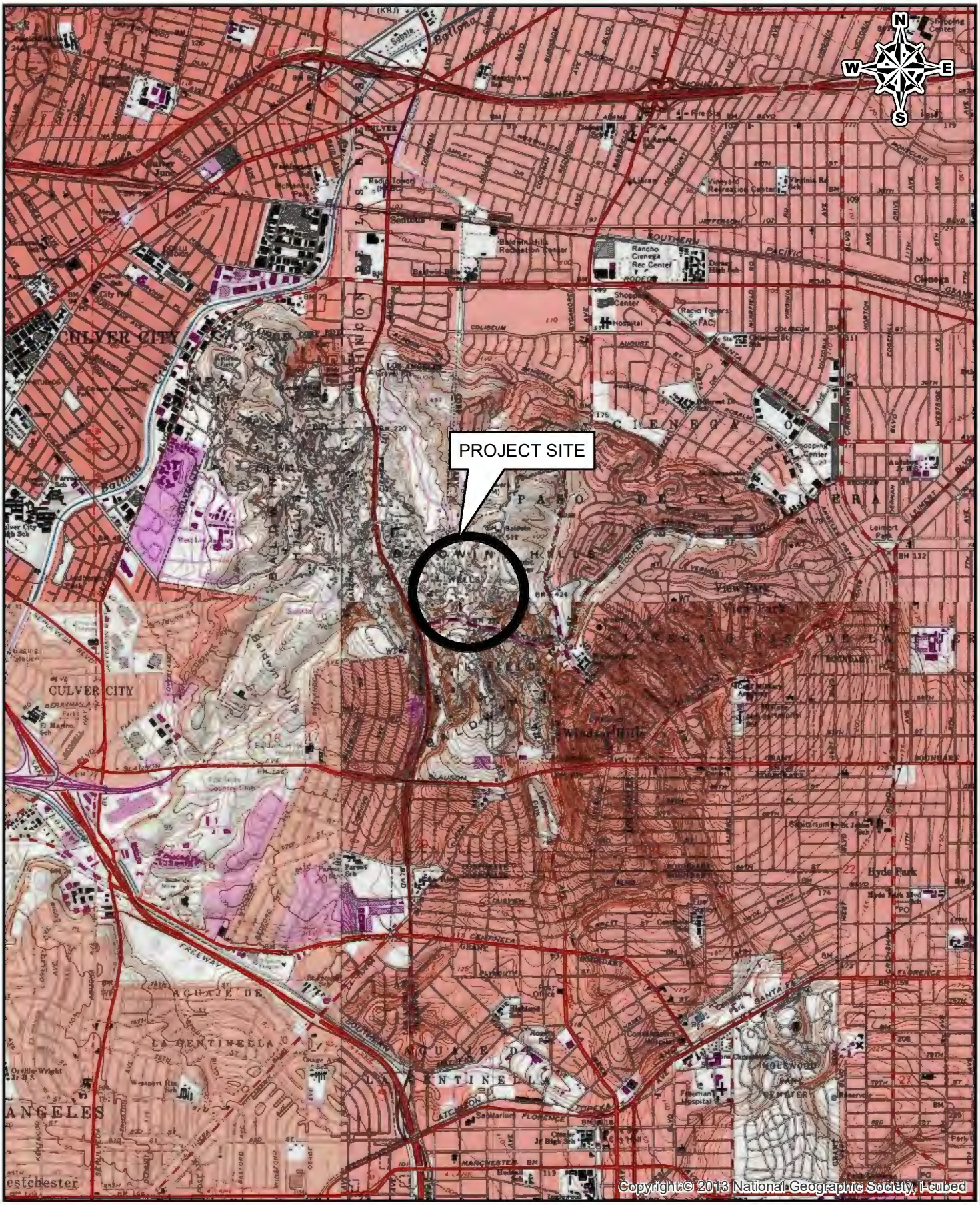
Figure 1

Site Location Map

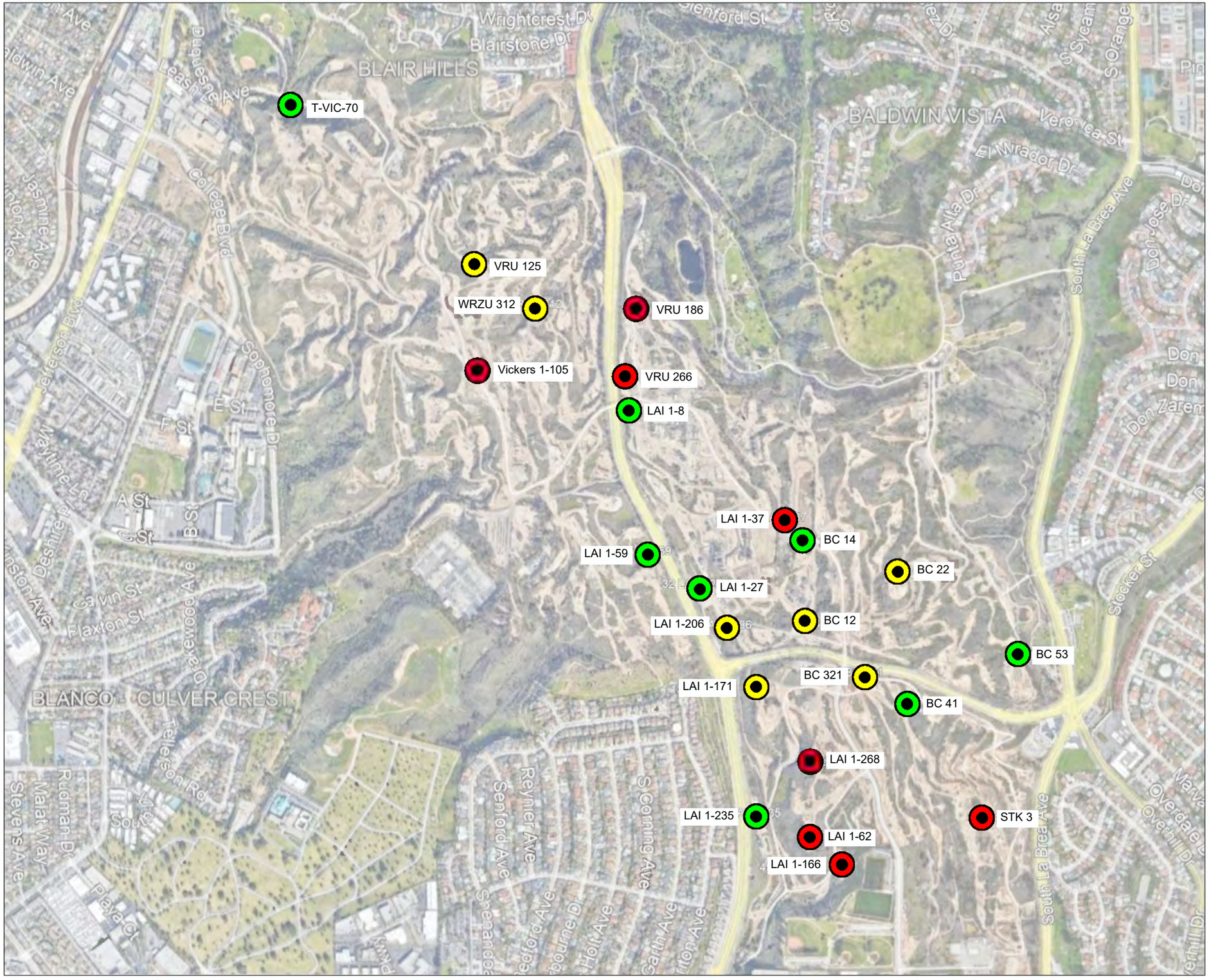


0 1,000 2,000
Feet

SCS ENGINEERS 3900 KILROY AIRPORT WAY, STE 100 LONG BEACH, CALIFORNIA 90806-6816	SITE: Inglewood Oil Field Los Angeles County, California	Job No.: 01219202.00 Title: SITE LOCATION MAP	FIGURE 1

Figure 2

Soil Vapor Sample Location Map



LEGEND

- 2021 5 YEAR CYCLE SOIL GAS (SG) SAMPLE LOCATION
- 2020 SG RESAMPLE LOCATION (>1000 PPMV CH4)
- 2020 SG RESAMPLE LOCATION (<1000 PPMV CH4)

N

GRAPHIC SCALE
0 1000 2000
SCALE IN FEET

SHEET TITLE: SOIL GAS SAMPLE LOCATION MAP

PROJECT TITLE: INGLEWOOD OIL FIELD
LOS ANGELES, CALIFORNIA

CLIENT: SENTINEL PEAK RESOURCES
5640 SOUTH FAIRFAX AVENUE
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DWN. BY:	J.VARGAS	CHK. BY:	J.SIEG
ACAD FILE:	LONG BEACH	APP.BY:	J.NUNO

DATE: NOVEMBER 2021
SCALE: 1" = 1000'
FIGURE NO. 2

\\lbc-fs01\DATA\PROJECTS\01219202.00\Abandoned Well Monitoring\September 2021 Monitoring Event\Figure 2.dwg Nov 17, 2021 - 1:11pm By: 4552j.v

Table 1

Summary of Analytical Results for Soil Gas Samples

Table 1
Summary of Analytical Results for Soil Gas Samples
Inglewood Oil Field
5640 South Fairfax Avenue
Los Angeles, California 90056

Sample Number (or Boring ID)[1]	Sampling Date	Soil Vapor (ASTM D1945)				GEM Readings (H&P)
		Carbon Dioxide	Oxygen	Nitrogen	Methane	
		Percent by Volume			Parts per million by volume (ppmv)	
STK 3	September 27, 2021	12	3.8	79.5	**62,000**	68,000
LAI 1-62	September 27, 2021	10	3.0	59.4	**250,000**	285,000
BC 14	September 27, 2021	6.2	14.0	80.3	<10	2,000
LAI 1-8	September 27, 2021	16	4.4	79.9	**980**	800
LAI 1-166	September 30, 2021	3.7	9.9	42.7	**350,000**	447,000
BC 53	September 27, 2021	1.5	20	78.6	<10	0
BC 22	September 27, 2021	0.38	20	79.4	<10	0
BC 321	September 30, 2021	9.5	11	80	<10	0
BC 12	September 30, 2021	0.73	20	80.5	<10	0
LAI 1-206	September 30, 2021	12.0	7.7	81.6	**11**	0
VRU 266	September 27, 2021	18	3.1	79	**1,400**	0
VRU 186	September 27, 2021	15	3.6	84.2	**5,300**	0
LAI 1-27	September 30, 2021	12	4.0	85.9	**1,700**	0
	September 30, 2021 (REP)	12	3.9	85.9	**2,100**	0
T-VIC 70	September 27, 2021	8.6	12	79.8	**49**	0
LAI 1-235	September 30, 2021	12	3.0	85.8	**4,700**	**1,200**
LAI 1-268	September 30, 2021	20.0	4.6	70.9	**19,000**	35,000
LAI 1-37	September 27, 2021	17	3.7	82	**23,000**	25,000
LAI 1-171	September 30, 2021	1.3	20	79	<10	0
VRU 125	September 27, 2021	0.70	20	79	<10	0
Vickers 1-105	September 27, 2021	12	4.5	67.3	**160,000**	172,000
BC 41	September 30, 2021	4.9	18	76.9	<10	0
LAI 1-59	September 27, 2021	18	5.6	78.6	**8,500**	16,000
WRZU 312	September 27, 2021	1.9	19	79	<10	0
	September 27, 2021 (REP)	2.0	19	79	<10	0

Notes:

bgs = below ground surface

[1] = Sample designation provied by Sentinel Peak Resources

DUP = Duplicate sample

REP = Replicate Sample

N/A = Not applicable

Appendix A

Boring Logs

SCS ENGINEERS

BORING LOG

3900 Kilroy Airport Way, Suite 100
Long Beach, California 90806-6816

BORING NUMBER: BC 12

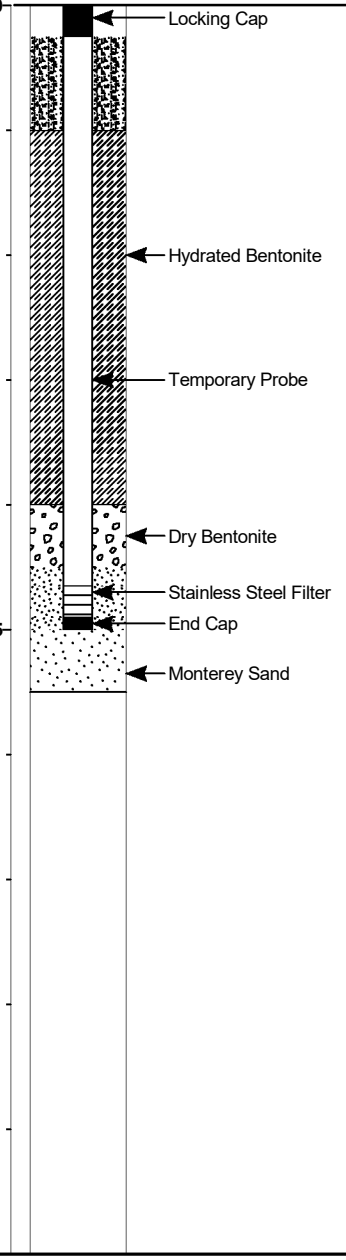
Sentinel Peak 2019 Methane Testing
Inglewood Oil Field
Los Angeles, CA

JOB NUMBER: 01219202.00

REMARKS:
Grid 3

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0				0.0	SC		Light Brown, Clayey Fine Sand with some Gravel, Dry.
	1							
	2							
	3				12	SC		Brown, Clayey Fine Sand with some Gravel, Slightly Moist.
1	4							
	5							
	6							
2	7							
	8							
	9							
3	10							

Completion Detail



Drilling Company: **H&P Mobile Geochemistry**
Drilling Method: **Direct Push**
Logged By: **J. Vargas**
Sampling Method: **Solid Spoon**

Date Started: **9/27/21**
Date Ended: **9/27/21**
Boring Diameter:
Total Depth: **5.5 ft.**

STANDARD_LOG 01219202.00.GPJ STD_LOG.GDT 11/18/21

SCS ENGINEERS

BORING LOG

3900 Kilroy Airport Way, Suite 100
Long Beach, California 90806-6816

BORING NUMBER: BC 22

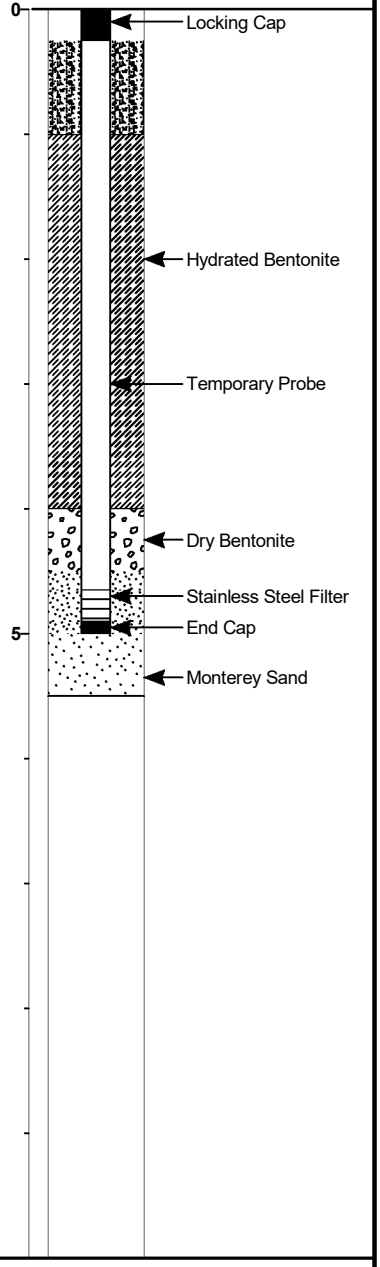
Sentinel Peak 2019 Methane Testing
Inglewood Oil Field
Los Angeles, CA

JOB NUMBER: 01219202.00

REMARKS:
Grid 45

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0				0.0	SM		Brown, Silty Fine Sand with some Gravel, Dry.
	1							
	2				0.0	SP		Yellowish Orange, Fine Sand, Slightly Moist.
	3							
1	4				0.0	SC		Brown, Clayey Sand, Slightly Moist.
	5							
	6							
2	7							
	8							
	9							
3	10							

Completion Detail



Drilling Company: **H&P Mobile Geochemistry**
Drilling Method: **Direct Push**
Logged By: **J. Vargas**
Sampling Method: **Solid Spoon**

Date Started: **9/27/21**
Date Ended: **9/27/21**
Boring Diameter:
Total Depth: **5.5 ft.**

STANDARD_LOG 01219202.00.GPJ STD_LOG.GDT 11/18/21

SCS ENGINEERS

BORING LOG

3900 Kilroy Airport Way, Suite 100
Long Beach, California 90806-6816

BORING NUMBER: BC 321

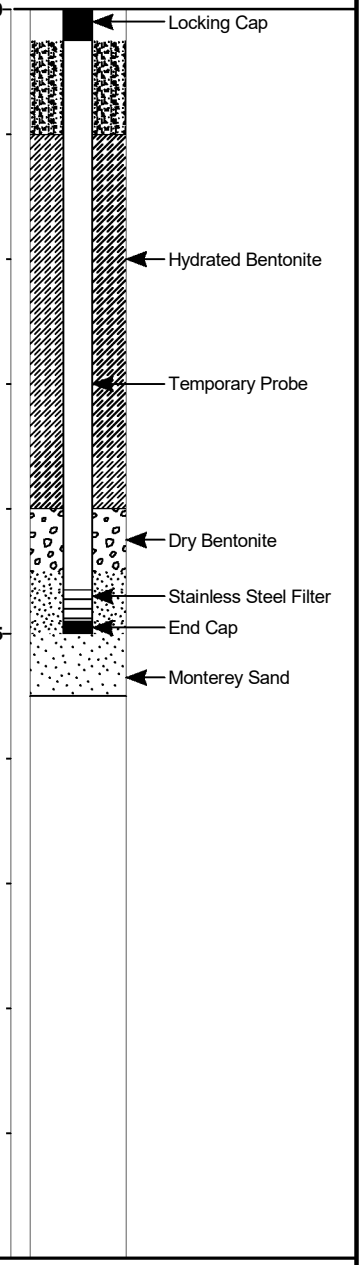
Sentinel Peak 2019 Methane Testing
Inglewood Oil Field
Los Angeles, CA

JOB NUMBER: 01219202.00

REMARKS:
Grid 31

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0				0.0	SM		Light Brown, Silty Sand with some Gravel, Dry.
	1							
	2							
	3				7.8	SC		Brown to Grayish Green, Clayey Fine Sand, Slightly Moist, Hydrocarbon Staining and Odors
1	4							
	5							
	6							
2	7							
	8							
	9							
3	10							

Completion Detail



Drilling Company: **H&P Mobile Geochemistry**
Drilling Method: **Direct Push**
Logged By: **J. Vargas**
Sampling Method: **Solid Spoon**

Date Started: **9/27/21**
Date Ended: **9/27/21**
Boring Diameter:
Total Depth: **5.5 ft.**

STANDARD_LOG 01219202.00.GPJ STD_LOG.GDT 11/18/21

SCS ENGINEERS

BORING LOG

3900 Kilroy Airport Way, Suite 100
Long Beach, California 90806-6816

BORING NUMBER: LAI 1-171 Page 1 of 1

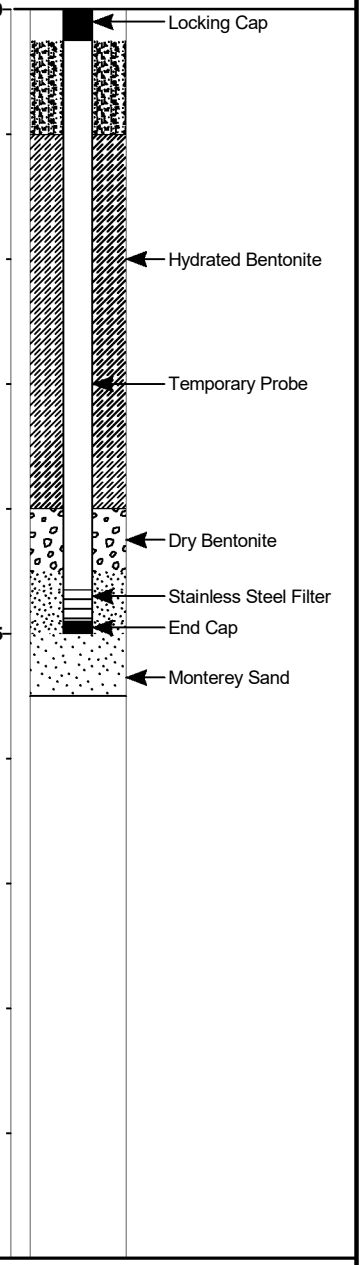
Sentinel Peak 2019 Methane Testing
Inglewood Oil Field
Los Angeles, CA

JOB NUMBER: 01219202.00

REMARKS:
Grid 11

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0				0.3	SM		Light Brown, Silty Fine Sand with some Gravel, Dry.
	1							
	2							
	3				0.0	SC		Yellowish Orange, to Brown, Fine Sand with Trace Clay, Slightly Moist.
1	4							
	5							
	6							
2	7							
	8							
	9							
3	10							

Completion Detail



Drilling Company: **H&P Mobile Geochemistry**
Drilling Method: **Direct Push**
Logged By: **J. Vargas**
Sampling Method: **Solid Spoon**

Date Started: **9/30/21**
Date Ended: **9/30/21**
Boring Diameter:
Total Depth: **5.5 ft.**

STANDARD_LOG 01219202.00.GPJ STD_LOG.GDT 11/18/21

SCS ENGINEERS

BORING LOG

3900 Kilroy Airport Way, Suite 100
Long Beach, California 90806-6816

BORING NUMBER: LAI 1-206 Page 1 of 1

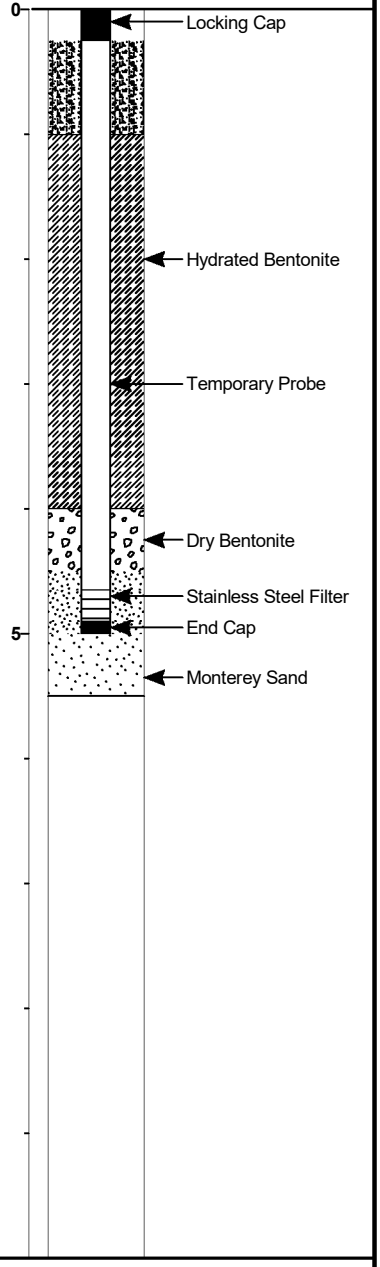
Sentinel Peak 2019 Methane Testing
Inglewood Oil Field
Los Angeles, CA

JOB NUMBER: 01219202.00

REMARKS:
Grid 3

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0				0.0	SC		Light Brown, Clayey Fine Sand with some Gravel, Dry.
	1							
	2							
	3				12	SC		Brown, Clayey Fine Sand with some Gravel, Slightly Moist.
1	4							
	5							
	6							
2	7							
	8							
	9							
3	10							

Completion Detail



Drilling Company: **H&P Mobile Geochemistry**
Drilling Method: **Direct Push**
Logged By: **J. Vargas**
Sampling Method: **Solid Spoon**

Date Started: **9/27/21**
Date Ended: **9/27/21**
Boring Diameter:
Total Depth: **5.5 ft.**

STANDARD_LOG 01219202.00.GPJ STD_LOG.GDT 11/18/21

SCS ENGINEERS

BORING LOG

3900 Kilroy Airport Way, Suite 100
Long Beach, California 90806-6816

BORING NUMBER: VRU 125 Page 1 of 1

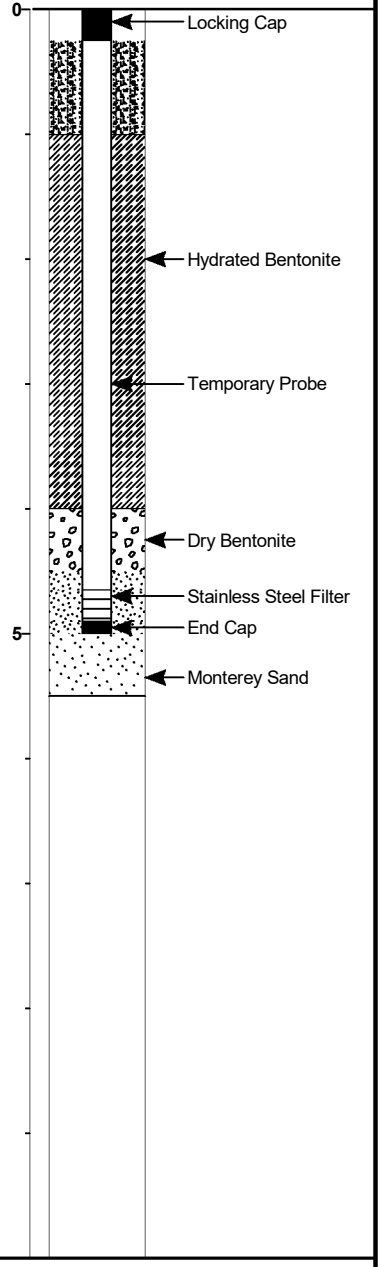
Sentinel Peak 2019 Methane Testing
Inglewood Oil Field
Los Angeles, CA

JOB NUMBER: 01219202.00

REMARKS:
Grid 3

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0				0.0	SM		Brown, Silty Fine Sand with some Gravel, Dry.
	1							
	2							
	3							
1					0.0	SM		Brown, Silty Fine Sand with some Gravel, Slightly Moist.
	4							
	5							
	6							
2								
	7							
	8							
	9							
3	10							

Completion Detail



Drilling Company: **H&P Mobile Geochemistry**
Drilling Method: **Direct Push**
Logged By: **J. Vargas**
Sampling Method: **Solid Spoon**

Date Started: **9/27/21**
Date Ended: **9/27/21**
Boring Diameter:
Total Depth: **5.5 ft.**

STANDARD_LOG 01219202.00.GPJ STD_LOG.GDT 11/18/21

SCS ENGINEERS

BORING LOG

3900 Kilroy Airport Way, Suite 100
Long Beach, California 90806-6816

BORING NUMBER: VRU 266 Page 1 of 1

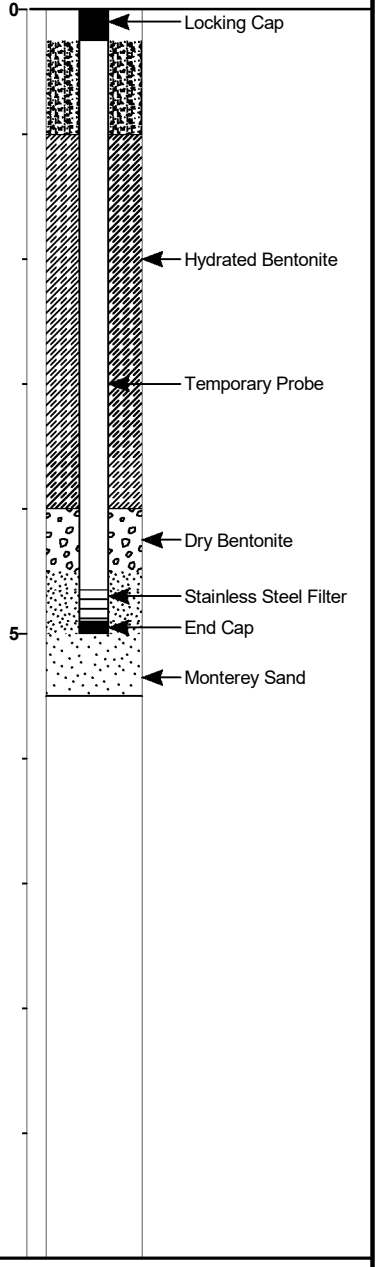
Sentinel Peak 2019 Methane Testing
Inglewood Oil Field
Los Angeles, CA

JOB NUMBER: 01219202.00

REMARKS:
Grid 3

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0				0.0	SM		Light Brown, Silty Fine Sand with some Gravel, Dry.
	1							
	2							
	3				87	SC		Brown to Black with some Green, Clayey Fine Sand, Slightly Moist, Hydrocarbon Staining and Odors.
1	4							
	5							
	6							
2	7							
	8							
	9							
3	10							

Completion Detail



Drilling Company: **H&P Mobile Geochemistry**
Drilling Method: **Direct Push**
Logged By: **J. Vargas**
Sampling Method: **Solid Spoon**

Date Started: **9/27/21**
Date Ended: **9/27/21**
Boring Diameter:
Total Depth: **5.5 ft.**

STANDARD_LOG 01219202.00.GPJ STD_LOG.GDT 11/18/21

SCS ENGINEERS

BORING LOG

3900 Kilroy Airport Way, Suite 100
Long Beach, California 90806-6816

BORING NUMBER: WRZU 312 Page 1 of 1

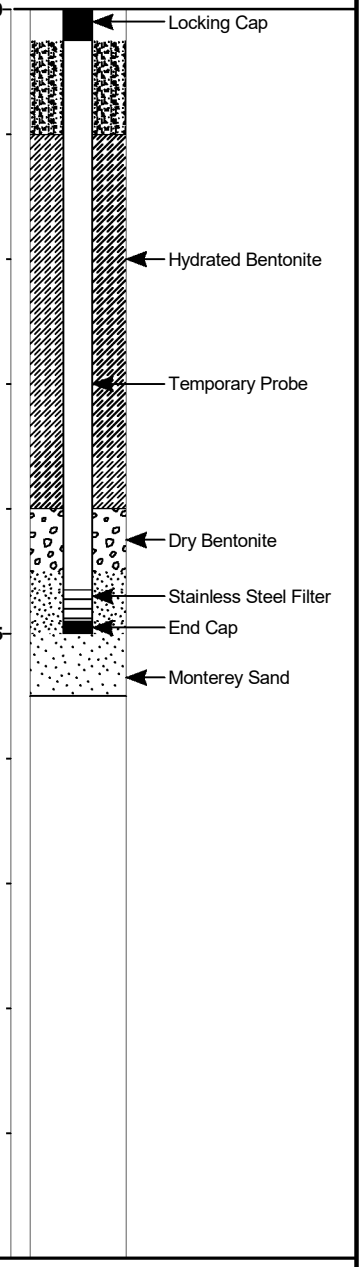
Sentinel Peak 2019 Methane Testing
Inglewood Oil Field
Los Angeles, CA

JOB NUMBER: 01219202.00

REMARKS:
Grid 3

Depth (meters)	Depth (feet)	Sample Location	Sample Number	Blow Counts	OVM (ppm)	USCS Soil Class.	Graphic Log	Description
0	0				0.0	SC		Brown, Clayey Fine Sand with some Gravel, Dry.
	1							
	2							
	3				12	SC		Brown, Clayey Fine Sand with some Gravel, Slightly Moist, No Staining and/or Odors.
1	4							
	5							
	6							
2	7							
	8							
	9							
3	10							

Completion Detail



Drilling Company: **H&P Mobile Geochemistry**
Drilling Method: **Direct Push**
Logged By: **J. Vargas**
Sampling Method: **Solid Spoon**

Date Started: **9/27/21**
Date Ended: **9/27/21**
Boring Diameter:
Total Depth: **5.5 ft.**

STANDARD_LOG 01219202.00.GPJ STD_LOG.GDT 11/18/21

Appendix B

H&P Laboratory Report and Chain-of-Custody Documentation

Mobile
Geochemistry Inc.

13 October 2021

Jeff Sieg
SCS Engineers - Long Beach
3900 Kilroy Airport Way, Suite 100
Long Beach, CA 90806-6816

H&P Project: SCS100121-12
Client Project: 01219202.00/ S Fairfax Ave

Dear Jeff Sieg:

Enclosed is the analytical report for the above referenced project. The data herein applies to samples as received by H&P Mobile Geochemistry, Inc. on 9/27/2021 -9/30/2021 which were analyzed in accordance with the attached Chain of Custody record(s).

The results for all sample analyses and required QA/QC analyses are presented in the following sections and summarized in the documents:

- Sample Summary
- Case Narrative (if applicable)
- Sample Results
- Quality Control Summary
- Notes and Definitions / Appendix
- Chain of Custody
- Sampling Logs (if applicable)

Unless otherwise noted, I certify that all analyses were performed and reviewed in compliance with our Quality Systems Manual and Standard Operating Procedures. This report shall not be reproduced, except in full, without the written approval of H&P Mobile Geochemistry, Inc.

We at H&P Mobile Geochemistry, Inc. sincerely appreciate the opportunity to provide analytical services to you on this project. If you have any questions or concerns regarding this analytical report, please contact me at your convenience at 760-804-9678.

Sincerely,

Lisa Eminhizer
Laboratory Director

H&P Mobile Geochemistry, Inc. is certified under the California ELAP and the National Environmental Laboratory Accreditation Conference (NELAC) for the fields of proficiency and analytes listed on those certificates. H& P is approved as an Environmental Testing Laboratory in accordance with the DoD-ELAP Program and ISO/IEC 17025:2005 programs for the fields of proficiency and analytes included in the certification process and to the extent offered by the accreditation agency . Unless otherwise noted, accreditation certificate numbers, expiration of certificates, and scope of accreditation can be found at: www.handpmg.com/about/certifications. Fields of services and analytes contained in this report that are not listed on the certificates should be considered uncertified or unavailable for certification.

H&P Mobile
Geochemistry Inc.

2470 Impala Drive
Carlsbad, CA 92010
760-804-9678 Phone
760-804-9159 Fax

SCS Engineers - Long Beach	Project: SCS100121-12	
3900 Kilroy Airport Way, Suite 100	Project Number: 01219202.00/ S Fairfax Ave	Reported:
Long Beach, CA 90806-6816	Project Manager: Jeff Sieg	13-Oct-21 15:16

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LAI 1-62	E110011-01	Vapor	27-Sep-21	27-Sep-21
STK 3	E110011-02	Vapor	27-Sep-21	27-Sep-21
BC 14	E110011-03	Vapor	27-Sep-21	27-Sep-21
LAI 8	E110011-04	Vapor	27-Sep-21	27-Sep-21
T-VIC 70	E110011-05	Vapor	27-Sep-21	27-Sep-21
VRV 125	E110011-06	Vapor	27-Sep-21	27-Sep-21
WRZV 312	E110011-07	Vapor	27-Sep-21	27-Sep-21
WRZV 312 REP	E110011-08	Vapor	27-Sep-21	27-Sep-21
Vickers 1-105	E110011-09	Vapor	27-Sep-21	27-Sep-21
LAI 1-59	E110011-10	Vapor	27-Sep-21	27-Sep-21
VRV 266	E110011-11	Vapor	27-Sep-21	27-Sep-21
VRV 186	E110011-12	Vapor	27-Sep-21	27-Sep-21
LAI 1-37	E110011-13	Vapor	27-Sep-21	27-Sep-21
BC 22	E110011-14	Vapor	27-Sep-21	27-Sep-21
BC 53	E110011-15	Vapor	27-Sep-21	27-Sep-21
LAI 1-27	E110012-01	Vapor	30-Sep-21	30-Sep-21
LAI 1-27-REP	E110012-02	Vapor	30-Sep-21	30-Sep-21
LAI 1-206	E110012-03	Vapor	30-Sep-21	30-Sep-21
BC 12	E110012-04	Vapor	30-Sep-21	30-Sep-21
BC 321	E110012-05	Vapor	30-Sep-21	30-Sep-21
BC 41	E110012-06	Vapor	30-Sep-21	30-Sep-21
LAI 1-171	E110012-07	Vapor	30-Sep-21	30-Sep-21
LAI 1-268	E110012-08	Vapor	30-Sep-21	30-Sep-21
LAI 1-166	E110012-09	Vapor	30-Sep-21	30-Sep-21
LAI 1-235	E110012-10	Vapor	30-Sep-21	30-Sep-21

H&P Mobile
Geochemistry Inc.

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SCS Engineers - Long Beach	Project: SCS100121-12	
3900 Kilroy Airport Way, Suite 100	Project Number: 01219202.00/ S Fairfax Ave	Reported:
Long Beach, CA 90806-6816	Project Manager: Jeff Sieg	13-Oct-21 15:16

Soil Vapor/Air Analysis by ASTM D1945

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
LAI 1-62 (E110011-01) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**10**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**3.0**	0.20	"	"	"	"	"	"	
STK 3 (E110011-02) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**12**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**3.8**	0.20	"	"	"	"	"	"	
BC 14 (E110011-03) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**6.2**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**14**	0.20	"	"	"	"	"	"	
LAI 8 (E110011-04) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**16**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**4.4**	0.20	"	"	"	"	"	"	
T-VIC 70 (E110011-05) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**8.6**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**12**	0.20	"	"	"	"	"	"	
VRV 125 (E110011-06) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**0.70**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**20**	0.20	"	"	"	"	"	"	
WRZV 312 (E110011-07) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**1.9**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**19**	0.20	"	"	"	"	"	"	

H&P Mobile
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760-804-9678 Phone
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SCS Engineers - Long Beach	Project: SCS100121-12	
3900 Kilroy Airport Way, Suite 100	Project Number: 01219202.00/ S Fairfax Ave	Reported:
Long Beach, CA 90806-6816	Project Manager: Jeff Sieg	13-Oct-21 15:16

Soil Vapor/Air Analysis by ASTM D1945

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
WRZV 312 REP (E110011-08) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**2.0**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**19**	0.20	"	"	"	"	"	"	
Vickers 1-105 (E110011-09) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**12**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**4.5**	0.20	"	"	"	"	"	"	
LAI 1-59 (E110011-10) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**18**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**5.6**	0.20	"	"	"	"	"	"	
VRV 266 (E110011-11) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**18**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**3.1**	0.20	"	"	"	"	"	"	
VRV 186 (E110011-12) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**15**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**3.6**	0.20	"	"	"	"	"	"	
LAI 1-37 (E110011-13) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**17**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**3.7**	0.20	"	"	"	"	"	"	
BC 22 (E110011-14) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**0.38**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**20**	0.20	"	"	"	"	"	"	

H&P Mobile
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SCS Engineers - Long Beach	Project: SCS100121-12	
3900 Kilroy Airport Way, Suite 100	Project Number: 01219202.00/ S Fairfax Ave	Reported:
Long Beach, CA 90806-6816	Project Manager: Jeff Sieg	13-Oct-21 15:16

Soil Vapor/Air Analysis by ASTM D1945

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
BC 53 (E110011-15) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Carbon dioxide	**1.5**	0.20	%	1	EJ10804	08-Oct-21	08-Oct-21	ASTM D1945	
Oxygen	**20**	0.20	"	"	"	"	"	"	
LAI 1-27 (E110012-01) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Carbon dioxide	**12**	0.20	%	1	EJ11209	11-Oct-21	11-Oct-21	ASTM D1945	
Oxygen	**4.0**	0.20	"	"	"	"	"	"	
LAI 1-27-REP (E110012-02) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Carbon dioxide	**12**	0.20	%	1	EJ11209	11-Oct-21	11-Oct-21	ASTM D1945	
Oxygen	**3.9**	0.20	"	"	"	"	"	"	
LAI 1-206 (E110012-03) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Carbon dioxide	**12**	0.20	%	1	EJ11209	11-Oct-21	11-Oct-21	ASTM D1945	
Oxygen	**7.7**	0.20	"	"	"	"	"	"	
BC 12 (E110012-04) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Carbon dioxide	**0.73**	0.20	%	1	EJ11209	11-Oct-21	11-Oct-21	ASTM D1945	
Oxygen	**20**	0.20	"	"	"	"	"	"	
BC 321 (E110012-05) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Carbon dioxide	**9.5**	0.20	%	1	EJ11209	11-Oct-21	11-Oct-21	ASTM D1945	
Oxygen	**11**	0.20	"	"	"	"	"	"	
BC 41 (E110012-06) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Carbon dioxide	**4.9**	0.20	%	1	EJ11209	11-Oct-21	11-Oct-21	ASTM D1945	
Oxygen	**18**	0.20	"	"	"	"	"	"	

H&P Mobile
Geochemistry Inc.

2470 Impala Drive
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760-804-9678 Phone
760-804-9159 Fax

SCS Engineers - Long Beach	Project: SCS100121-12	
3900 Kilroy Airport Way, Suite 100	Project Number: 01219202.00/ S Fairfax Ave	Reported:
Long Beach, CA 90806-6816	Project Manager: Jeff Sieg	13-Oct-21 15:16

Soil Vapor/Air Analysis by ASTM D1945

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
LAI 1-171 (E110012-07) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Carbon dioxide	**1.3**	0.20	%	1	EJ11209	11-Oct-21	11-Oct-21	ASTM D1945	
Oxygen	**20**	0.20	"	"	"	"	"	"	
LAI 1-268 (E110012-08) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Carbon dioxide	**20**	0.20	%	1	EJ11209	11-Oct-21	11-Oct-21	ASTM D1945	
Oxygen	**4.6**	0.20	"	"	"	"	"	"	
LAI 1-166 (E110012-09) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Carbon dioxide	**3.7**	0.20	%	1	EJ11209	11-Oct-21	11-Oct-21	ASTM D1945	
Oxygen	**9.9**	0.20	"	"	"	"	"	"	
LAI 1-235 (E110012-10) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Carbon dioxide	**12**	0.20	%	1	EJ11209	11-Oct-21	11-Oct-21	ASTM D1945	
Oxygen	**3.0**	0.20	"	"	"	"	"	"	

H&P Mobile
Geochemistry Inc.

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Carlsbad, CA 92010
760-804-9678 Phone
760-804-9159 Fax

SCS Engineers - Long Beach	Project: SCS100121-12	
3900 Kilroy Airport Way, Suite 100	Project Number: 01219202.00/ S Fairfax Ave	Reported:
Long Beach, CA 90806-6816	Project Manager: Jeff Sieg	13-Oct-21 15:16

Soil Vapor/Air Analysis by EPA 8015M

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
LAI 1-62 (E110011-01) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	**250000**	1000	ppmv	100	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
STK 3 (E110011-02) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	**62000**	1000	ppmv	100	EJ11308	13-Oct-21	13-Oct-21	EPA 8015M	
BC 14 (E110011-03) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	ND	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
LAI 8 (E110011-04) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	**980**	10	ppmv	1	EJ11208	11-Oct-21	11-Oct-21	EPA 8015M	
T-VIC 70 (E110011-05) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	**49**	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
VRV 125 (E110011-06) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	ND	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
WRZV 312 (E110011-07) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	ND	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
WRZV 312 REP (E110011-08) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	ND	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
Vickers 1-105 (E110011-09) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	**160000**	1000	ppmv	100	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	

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SCS Engineers - Long Beach	Project: SCS100121-12	
3900 Kilroy Airport Way, Suite 100	Project Number: 01219202.00/ S Fairfax Ave	Reported:
Long Beach, CA 90806-6816	Project Manager: Jeff Sieg	13-Oct-21 15:16

Soil Vapor/Air Analysis by EPA 8015M

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
LAI 1-59 (E110011-10) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	**8500**	1000	ppmv	100	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
VRV 266 (E110011-11) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	**1400**	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
VRV 186 (E110011-12) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	**5300**	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
LAI 1-37 (E110011-13) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	**23000**	100	ppmv	10	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
BC 22 (E110011-14) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	ND	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
BC 53 (E110011-15) Vapor Sampled: 27-Sep-21 Received: 27-Sep-21									
Methane	ND	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
LAI 1-27 (E110012-01) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Methane	**1700**	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
LAI 1-27-REP (E110012-02) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Methane	**2100**	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
LAI 1-206 (E110012-03) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Methane	**11**	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	

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SCS Engineers - Long Beach	Project: SCS100121-12	
3900 Kilroy Airport Way, Suite 100	Project Number: 01219202.00/ S Fairfax Ave	Reported:
Long Beach, CA 90806-6816	Project Manager: Jeff Sieg	13-Oct-21 15:16

Soil Vapor/Air Analysis by EPA 8015M

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
BC 12 (E110012-04) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Methane	ND	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
BC 321 (E110012-05) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Methane	ND	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
BC 41 (E110012-06) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Methane	ND	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
LAI 1-171 (E110012-07) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Methane	ND	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
LAI 1-268 (E110012-08) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Methane	**19000**	1000	ppmv	100	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
LAI 1-166 (E110012-09) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Methane	**350000**	1000	ppmv	100	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	
LAI 1-235 (E110012-10) Vapor Sampled: 30-Sep-21 Received: 30-Sep-21									
Methane	**4700**	10	ppmv	1	EJ10803	08-Oct-21	08-Oct-21	EPA 8015M	

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SCS Engineers - Long Beach	Project: SCS100121-12	
3900 Kilroy Airport Way, Suite 100	Project Number: 01219202.00/ S Fairfax Ave	Reported:
Long Beach, CA 90806-6816	Project Manager: Jeff Sieg	13-Oct-21 15:16

Soil Vapor/Air Analysis by ASTM D1945 - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EJ10804 - GC										
Blank (EJ10804-BLK1)				Prepared & Analyzed: 08-Oct-21						
Carbon dioxide	ND	0.20	%							
Batch EJ11209 - GC										
Blank (EJ11209-BLK1)				Prepared & Analyzed: 11-Oct-21						
Carbon dioxide	ND	0.20	%							

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SCS Engineers - Long Beach	Project: SCS100121-12	
3900 Kilroy Airport Way, Suite 100	Project Number: 01219202.00/ S Fairfax Ave	Reported:
Long Beach, CA 90806-6816	Project Manager: Jeff Sieg	13-Oct-21 15:16

Soil Vapor/Air Analysis by EPA 8015M - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EJ10803 - GC										
Blank (EJ10803-BLK1)				Prepared & Analyzed: 08-Oct-21						
Methane	ND	10	ppmv							
Blank (EJ10803-BLK2)				Prepared & Analyzed: 08-Oct-21						
Methane	ND	10	ppmv							
Batch EJ11208 - GC										
Blank (EJ11208-BLK1)				Prepared & Analyzed: 11-Oct-21						
Methane	ND	10	ppmv							
Batch EJ11308 - GC										
Blank (EJ11308-BLK1)				Prepared & Analyzed: 13-Oct-21						
Methane	ND	10	ppmv							

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SCS Engineers - Long Beach	Project: SCS100121-12	
3900 Kilroy Airport Way, Suite 100	Project Number: 01219202.00/ S Fairfax Ave	Reported:
Long Beach, CA 90806-6816	Project Manager: Jeff Sieg	13-Oct-21 15:16

Notes and Definitions

LCC	Leak Check Compound
ND	Analyte NOT DETECTED at or above the reporting limit
MDL	Method Detection Limit
%REC	Percent Recovery
RPD	Relative Percent Difference

All soil results are reported in wet weight.

Appendix

H&P Mobile Geochemistry, Inc. is approved as an Environmental Testing Laboratory and Mobile Laboratory in accordance with the DoD-ELAP Program and ISO/IEC 17025:2005 programs through PJLA, accreditation number 69070 for EPA Method TO-15, EPA Method 8260B and H&P 8260SV.

H&P is approved by the State of California as an Environmental Laboratory and Mobile Laboratory in conformance with the Environmental Laboratory Accreditation Program (ELAP) for the category of Volatile and Semi-Volatile Organic Chemistry of Hazardous Waste, certification numbers 2740, 2741, 2743 & 2745.

H&P is approved by the State of Louisiana Department of Environmental Quality under the National Environmental Laboratory Accreditation Conference (NELAC) certification number 04138.

The complete list of stationary and mobile laboratory certifications along with the fields of testing (FOTs) and analyte lists are available at www.handpmg.com/about/certifications.

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VAPOR / AIR Chain of Custody

DATE: 1/27/21

Lab Client and Project Information

Lab Client/Consultant: SCS Engineers	Project Name / #: 01219207.00
Lab Client Project Manager: Jeff Sieg	Project Location: 5640 S. Fairfax Ave LA
Lab Client Address: 3940 Kilroy Airport Way St. 100	Report E-Mail(s): jsieg@scsengineers.com jvargas@scsengineers.com
Lab Client City, State, Zip: Long Beach, CA 90806	
Phone Number: 562-572-4461	

Reporting Requirements
- [x] Standard Report [ ] Level III [ ] Level IV
- [ ] Excel EDD [ ] Other EDD:
- [ ] CA Geotracker Global ID:

Turnaround Time
- [x] **Standard** (7 days for preliminary report, 10 days for final report)
- [ ] **Rush** (specify):

Sampler Information
Sampler(s): B. Villaroeles
Signature:
Date: 1/27/21

Sample Receipt (Lab Use Only)

Date Rec'd: 10/1/21	Control #: 2106646.03
H&P Project # SCS095021-1D SCS10610-1C	
Lab Work Order # E110011	
Sample Intact: [x] Yes [ ] No [ ] See Notes Below	
Receipt Gauge ID: 60206	Temp: RT
Outside Lab:	
Receipt Notes/Tracking #:	
Lab PM Initials: SM	

Additional Instructions to Laboratory:

** Preferred VOC units (please choose one):*
[ ] µg/L [ ] µg/m³ [ ] ppbv [x] ppmv

SAMPLE NAME	FIELD POINT NAME (if applicable)	DATE mm/dd/yy	TIME 24hr clock	SAMPLE TYPE Indoor Air (IA), Ambient Air (AA), Subslab (SS), Soil Vapor (SV)	CONTAINER SIZE & TYPE 400mL/1L/6L Summa, Tedlar, Tube, etc.	CONTAINER ID (###)	Lab use only: Receipt Vac	VOCs Standard Full List [ ] TO-15 [ ] 8260SV	VOCs Short List / Project List [ ] TO-15 [ ] 8260SV	Oxygenates [ ] TO-15 [ ] 8260SV	Naphthalene [ ] TO-15 [ ] 8260SV	TPHv as Gas [ ] TO-15m [ ] 8260SVm	Aromatic/Aliphatic Fractions [ ] TO-15m [ ] 8260SVm	Leak Check Compound [ ] DFA [ ] IPA [ ] He	Methane by EPA 8015m	Fixed Gases by ASTM D1945 [ ] O2 [ ] N2 [x] CO2				
LA 1-62		09/27/21	0832	SV	400mL	647	-0.16								X	X				
STK 3			0911	SV	400mL	645	0.41								X	X				
BG 14			0945	SV	400mL	643	0.24								X	X				
LA 8			1023	SV	400mL	649	0.04								X	X				
T-VIC 70			1100	SV	400mL	648	0.34								X	X				
VRV 125			1131	SV	400mL	651	0.42								X	X				
WRZV 312			1153	SV	400mL	650	-0.05								X	X				
WRZV 312 REP			1156	SV	400mL	678	-0.13								X	X				
Vickers 1-105			1221	SV	400mL	768	0.16								X	X				
LA 1-59			1245	SV	400mL	679	-0.05								X	X				

Approved/Relinquished by:	Company: SCS	Date: 9/27/21	Time: 1540	Received by:	Company: H&P	Date: 1/27/21	Time: 1540
Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:

**Approval constitutes as authorization to proceed with analysis and acceptance of conditions on back*

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& Field Office - Signal Hill, CA
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VAPOR / AIR Chain of Custody

DATE: 9/27/21

Lab Client and Project Information

Lab Client/Consultant: SCS Engineers	Project Name / #: 01219202.00
Lab Client Project Manager: Jeff Sieg	Project Location: 5640 S. Fairfax Ave LA
Lab Client Address: 3900 Kilroy Airport Way Suite 100	Report E-Mail(s): jsieg@scsengineers.com jvargas@scsengineers.com
Lab Client City, State, Zip: Long Beach, CA 90806	
Phone Number: 562-572-4461	

Reporting Requirements
- [x] Standard Report [ ] Level III [ ] Level IV
- [ ] Excel EDD [ ] Other EDD:
- [ ] CA Geotracker Global ID:

Turnaround Time
- [x] **Standard** (7 days for preliminary report, 10 days for final report)
- [ ] **Rush** (specify):

Sampler Information
- Sampler(s): B. Villarreales
- Signature:
- Date: 9/27/21

Sample Receipt (Lab Use Only)

Date Rec'd: 10/1/21	Control #: 21064b.03
H&P Project #: SCS092021-10 SCS100121-12	
Lab Work Order #: E110011	
Sample Intact: [x] Yes [ ] No [ ] See Notes Below	
Receipt Gauge ID: 60206	Temp: RT
Outside Lab:	
Receipt Notes/Tracking #:	Lab PM Initials: SM

Additional Instructions to Laboratory:

** Preferred VOC units (please choose one):*
[ ] µg/L [ ] µg/m³ [ ] ppbv [x] ppmv

SAMPLE NAME	FIELD POINT NAME (if applicable)	DATE mm/dd/yy	TIME 24hr clock	SAMPLE TYPE Indoor Air (IA), Ambient Air (AA), Subslab (SS), Soil Vapor (SV)	CONTAINER SIZE & TYPE 400mL/1L/6L Summa, Tedlar, Tube, etc.	CONTAINER ID (###)	Lab use only: Receipt Vac	VOCs Standard Full List [ ] TO-15 8260SV	VOCs Short List / Project List [ ] TO-15 8260SV	Oxygenates [ ] TO-15 8260SV	Naphthalene [ ] TO-15 8260SV	TPHv as Gas [ ] TO-15m 8260SVm	Aromatic/Aliphatic Fractions [ ] TO-15m 8260SVm	Leak Check Compound [ ] DFA [ ] IPA [ ] He	Methane by EPA 8015m	Fixed Gases by ASTM D1945 [x] CO2 [x] O2 [ ] N2				
VRV 266		09/27/21	1322	SV	400mL	642	0.14								X	X				
VRV 186		"	1343	SV	400mL	616	0.01								X	X				
LA1 1-37		"	1437	SV	400mL	617	-2.27								X	X				
BC 22		"	1457	SV	400mL	614	-0.43								X	X				
BC 53		"	1521	SV	400mL	621	-0.36								X	X				
															✓					

Approved/Relinquished by:	Company: SCS	Date: 9/27/21	Time: 1541	Received by:	Company: H&P	Date: 9/27/21	Time: 1541
Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:

*Approval constitutes as authorization to proceed with analysis and acceptance of conditions on back

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VAPOR / AIR Chain of Custody

DATE: 9/30/21
Page 1 of 1

Lab Client and Project Information

Lab Client/Consultant: SCS Engineers	Project Name / #: 01219202.00
Lab Client Project Manager: Jeff Sieg	Project Location: 5640 S. Fairfax Ave LA
Lab Client Address: 3900 Kilroy Airport Way Suite 100	Report E-Mail(s): jsieg@scsengineers.com jvargas@scsengineers.com
Lab Client City, State, Zip: Long Beach, CA 90806	
Phone Number: 562-572-4461	

Reporting Requirements
- [x] Standard Report [ ] Level III [ ] Level IV
- [ ] Excel EDD [ ] Other EDD:
- [ ] CA Geotracker Global ID:

Turnaround Time
- [x] **Standard** (7 days for preliminary report, 10 days for final report)
- [ ] **Rush** (specify):

Sampler Information
Sampler(s): J. Vanderval / B. Villa
Signature:
Date: 9/30/21

Sample Receipt (Lab Use Only)

Date Rec'd: 10/1/21	Control #: 210646.03
H&P Project # SCS 100121-12	
Lab Work Order # E110012	
Sample Intact: [x] Yes [ ] No [ ] See Notes Below	
Receipt Gauge ID: 60206	Temp: RT
Outside Lab:	
Receipt Notes/Tracking #:	
Lab PM Initials: SM	

Additional Instructions to Laboratory:

** Preferred VOC units (please choose one):*
[ ] µg/L [ ] µg/m³ [ ] ppbv [x] ppmv

SAMPLE NAME	FIELD POINT NAME (if applicable)	DATE mm/dd/yy	TIME 24hr clock	SAMPLE TYPE Indoor Air (IA), Ambient Air (AA), Subslab (SS), Soil Vapor (SV)	CONTAINER SIZE & TYPE 400mL/1L/6L Summa, Tedlar, Tube, etc.	CONTAINER ID (###)	Lab use only: Receipt Vac	VOCs Standard Full List [ ] TO-15 [ ] 8260SV	VOCs Short List / Project List [ ] TO-15 [ ] 8260SV	Oxygenates [ ] TO-15 [ ] 8260SV	Naphthalene [ ] TO-15 [ ] 8260SV	TPHv as Gas [ ] TO-15m [ ] 8260SVm	Aromatic/Aliphatic Fractions [ ] TO-15m [ ] 8260SVm	Leak Check Compound [ ] DFA [ ] IPA [ ] He	Methane by EPA 8015m	Fixed Gases by ASTM D1945 [x] CO2 [x] O2 [ ] N2
LAI 1-27		9/30/21	0759	SV	200	521	-0.13								X	X
LAI 1-27-REP			0806			524	-0.04								X	X
LAI 1-206			0818			517	0.14								X	X
BC 12			0833			523	0.01								X	X
BC 321			0850			507	-0.85								X	X
BC 41			0902			515	-0.78								X	X
LAI 1-171			0916			514	-1.22								X	X
LAI 1-268			0935		510 ~~504~~	~~510~~ 1011	-1.16								X	X
CAI 1-166			0951		504	~~334~~	-0.84								X	X
LAI 1-235			0955		450mL	619	-0.86								X	X

	Company	Date	Time	Received by	Company	Date	Time
Approved/Relinquished by:	SCS	9/30/21	1007		H&P	9/31/21	1007
Approved/Relinquished by:							
Approved/Relinquished by:							

*Approval constitutes as authorization to proceed with analysis and acceptance of conditions on back

Mobile Geochemistry Inc.

FMS005
Revision: 3
Revised: 1/15/16
Effective: 1/25/16
Page 1 of 1

Log Sheet: Soil Vapor Sampling with Summa

H&P Project #: SCS 09272I - SPIO/TECH/LAN
Date: 9/27/21
Site Address: 5640 S. Fairfax Los Angeles
Page: 1 of 2
Consultant: SCS Engineers
H&P Rep(s): B. Villarosales
Reviewed: EC
Consultant Rep(s): Jay Vargas
J. Vanderwal
Scanned: TBM

Equipment Info
Inline Gauge ID#:
Pump ID#: 010

Purge Volume Information
PV Amount: 3PV
PV Includes: ☐ Tubing ☑ Sand 40% ☑ Dry Bent 50%

Leak Check Compound
A cloth saturated with LCC is placed around tubing connections and probe seal. This is done for all samples unless otherwise noted.
☐ 1,1-DFA ☐ 1,1,1,2-TFA ☐ IPA ☒ Other: N/A

	Sample and Summa Information							Probe Specs							Purge & Collection Information						
	Point ID	Summa ID #	Sample Kit ID #	Start Time	Initial Vac (" Hg)	End / Sample Time	End Vac (" Hg)	Probe Depth (ft)	Tubing Length (ft)	Tubing OD (in.)	Sand Ht (in.)	Sand Dia (in.)	Dry Bent. Ht (in.)	Dry Bent. Dia (in.)	Shut In Test 60 sec (✓)	Leak Check (✓)	Purge Vol (mL)	Purge Flow Rate (mL/min)	Pump Time (min:sec)	Sample Flow Rate (mL/min)	ProbeVac ☐ Hg ☑ H_2O
1	LAI 1-62	647	286	0858	-27	0832	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	~~200~~ 1544 200	7:43	200	-50
2	STK 3	645	224	0908	-28	0911	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	-5
3	BC 14	643	236	0942	-26.5	0945	Ø	5	7	1/4	12	2.25	6	2.25	✓	X	1626	200	0808	200	Ø
4	LAI 8	649	059	1014	-28	1023	-3	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	-15
5	T-VIC 70	648	194	1055	-28	1100	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	Ø
6	VRV 125	651	130	1127	-27	1131	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	Ø
7	WRZV 312	650	229	1149	-28	1153	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	Ø
8	WRZV312 Rep	678	229	~~1159~~	~~-28~~	1156	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1994	200	—	200	Ø
9	Vickers 1-105	668	388	1218	-26	1221	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	-15
10	LAI 1-59	679	245	1241	-28	1245	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	-10
11	VRV 266	642	250	1319	-26	1322	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	Ø
12	VRV 186	616	082	1336	-27.5	1343	-5	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	

Site Notes such as weather, visitors, scope deviations, health & safety issues, etc. (When making sample specific notes, reference the line number above):
- No leak check per job sheet

H&P Mobile Geochemistry Inc.

Log Sheet: Soil Vapor Sampling with Summa

H&P Project #: SCS092721-SP10/TECH/LAN
Date: 9/27/21
Site Address: 5640 S. Fairfax Los Angeles
Page: 2 of 2
Consultant: SCS Engineers
H&P Rep(s): B. Villarosales
Reviewed: EC
Consultant Rep(s): Jay Vargas
J. Vanderwal
Scanned:

Equipment Info
Inline Gauge ID#:
Pump ID#: 010

Purge Volume Information
PV Amount: 3PV
PV Includes: ☑ Tubing ☑ Sand 40% ☑ Dry Bent 50%

Leak Check Compound
A cloth saturated with LCC is placed around tubing connections and probe seal. This is done for all samples unless otherwise noted.
☐ 1,1-DFA
☐ 1,1,1,2-TFA
☐ IPA
☑ Other: N/A

	Sample and Summa Information							Probe Specs							Purge & Collection Information						
	Point ID	Summa ID #	Sample Kit ID #	Start Time	Initial Vac (" Hg)	End / Sample Time	End Vac (" Hg)	Probe Depth (ft)	Tubing Length (ft)	Tubing OD (in.)	Sand Ht (in.)	Sand Dia (in.)	Dry Bent. Ht (in.)	Dry Bent. Dia (in.)	Shut In Test 60 sec (✓)	Leak Check (✓)	Purge Vol (mL)	Purge Flow Rate (mL/min)	Pump Time (min:sec)	Sample Flow Rate (mL/min)	ProbeVac ☐ Hg ☐ H_2O
* 1	LA1 1-37	617	021	1415	-26.5	1437	-1	5	~~7~~	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	-90
2	BC 22	614	337	1453	-27.5	1457	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	-10
3	BC 53	621	342	1517	-27	1521	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	Ø
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Site Notes such as weather, visitors, scope deviations, health & safety issues, etc. (When making sample specific notes, reference the line number above):
* High Vac 1PV per client

H&P Mobile Geochemistry Inc.

FMS005
Revision: 3
Revised: 1/15/16
Effective: 1/25/16
Page 1 of 1

Log Sheet: Soil Vapor Sampling with Summa

H&P Project #: SCS0927Z1-SPID/TECH/LAN
Site Address: 5640 S. Fairfax Ave Los Angeles
Consultant: SCS
Consultant Rep(s): JAY VARGAS

Date: 9-30-21
Page: 1 of 1
H&P Rep(s): J. VANDEWATER
B. VILLATORO

Reviewed: EC
Scanned: TMoms

Equipment Info
Inline Gauge ID#: —
Pump ID#: 039

Purge Volume Information
PV Amount: 3PV
PV Includes: ☒ Tubing ☑ Sand 40% ☒ Dry Bent 50%

Leak Check Compound
A cloth saturated with LCC is placed around tubing connections and probe seal. This is done for all samples unless otherwise noted.
☑ 1,1-DFA ☐ 1,1,1,2-TFA ☐ IPA ☐ Other:

	Point ID	Summa ID #	Sample Kit ID #	Start Time	Initial Vac (" Hg)	End / Sample Time	End Vac (" Hg)	Probe Depth (ft)	Tubing Length (ft)	Tubing OD (in.)	Sand Ht (in.)	Sand Dia (in.)	Dry Bent. Ht (in.)	Dry Bent. Dia (in.)	Shut In Test 60 sec (✓)	Leak Check (✓)	Purge Vol (mL)	Purge Flow Rate (mL/min)	Pump Time (min:sec)	Sample Flow Rate (mL/min)	ProbeVac ☐ Hg ☑ H_2O
1	LAI-27	521	188	0758	-26	0759	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	Ø
2	LAI-27-REP	524	188	0759	-26	0800	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1744	—	—	200	Ø
3	LAI-206	517	268	0817	-28	0818	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1542	200	7:43	200	Ø
4	BC 12	523	270	0830	-26	0833	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	Ø
5	BC 321	507	359	0846	-28	0850	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	Ø
6	BC 41	515	371	0900	-26	0902	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	Ø
7	LAI 1-171	514	244	0915	-26	0916	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	9 -5
8	LAI 1-268	510	129	0934	-27	0935	Ø	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	-10
*9	LAI 1-166	334	509	0950	-28	0951	Ø	~~5~~ (9)	—	—	—	—	—	—	✓	X	—	—	—	200	0
10	LAI 1-235	619	336	0952	-25	0955	0	5	7	1/8	12	2.25	6	2.25	✓	X	1544	200	7:43	200	Ø
11																					
12																					

Site Notes such as weather, visitors, scope deviations, health & safety issues, etc. (When making sample specific notes, reference the line number above):
(9) VENT PIPE IS 4" DIA. NO PROBE SPOTS AVAILABLE

Appendix C

Field Monitoring Results

H&P Mobile Geochemistry Inc.

FMS009
Revision: 6
Revised: 8/27/2020
Effective: 8/27/2020
Page 1 of 1

Log Sheet: Landtec Meter

H&P Project #: SCS092721-SPID/TECH/LAN
Site Address: 5640 S. Fairfax Ave Los Angeles
Consultant: SCS Engineers
Consultant Rep(s): Jay Vargas

Date: 9/30/21
Page: 1 of 1
H&P Rep(s): B. Villanueva les
J. Vanderwal

Reviewed: EC
Scanned: 10/6/21

Landtec GEM 5000 Calibration

	Time	CH_4 (%)	CO_2 (%)	O_2 (%)	N_2 (%)	Barometric Pressure ("Hg)
Calibration Standard	n/a	15	15	4	70	n/a
Opening Calibration	0710	14.7	15.0	4.0	70	29.62
Closing Calibration	0820	15.2	14.9	4.0	70	29.66
Acceptable Range	n/a	13.5 - 16.5	13.5 - 16.5	2.5 - 5.5	55 - 85	n/a

LADBS Certification Info

Methane Testing License #10231
Instrument: Landtec GEM 5000
Instrument Accuracy: ±1.5% CH_4
Landtec Equipment ID#: 022
Manometer ID#: 023

	Point ID	Sample Time	Probe Depth (ft)	CH_4 (%)	CO_2 (%)	O_2 (%)	N_2 (%)	Barometric Pressure ("Hg)	Probe Pressure ("H_2O)	Field Notes
1	LAI 1-27	0744	5	0.2	13.8	0.0	85.9	29.59	0.0	
2	LAI 1-206	0752	5	0.1	15.2	3.1	81.6	29.59	0.0	
3	BC 12	0758	5	0.0	1.0	18.5	80.5	29.55	0.0	
4	BC 321	0817	5	0.0	11.8	8.1	80.0	29.53	0.0	
5	BC 41	0825	5	0.0	8.4	14.6	76.9	29.56	0.5	
6	LAI 1-171	0836	5	0.0	1.3	19.7	79.0	29.54	0.0	
7	LAI 1-268	0848	5	3.5	25.4	0.0	70.9	29.54	0.0	
8	LAI 1-166	0904	—	44.7	4.3	8.0	42.7	29.62	0.0	Vent tube PVC
9	LAI 1-235	0918	5	1.2	13.0	0.0	85.8	29.66	0.0	
10										

Site Notes (e.g. weather, visitors, scope deviations, health & safety issues, etc.):
- replace one-way valve

H&P Mobile Geochemistry Inc.

FMS009
Revision: 6
Revised: 8/27/2020
Effective:8/27/2020
Page 1 of 1

Log Sheet: Landtec Meter

H&P Project #: SCS092721 - SP10/TECH/LAN
Site Address: 5640 S. Fairfax Los Angeles
Consultant: SCS Engineers
Consultant Rep(s): Jay Vargas

Date: 9/27/21
Page: 1 of 2
H&P Rep(s): B. Villarosales
J. Vanderwal

Reviewed: EC
Scanned: Tlowe

Landtec GEM 5000 Calibration

	Time	CH_4 (%)	CO_2 (%)	O_2 (%)	N_2 (%)	Barometric Pressure ("Hg)
Calibration Standard	n/a	15	15	4	70	n/a
Opening Calibration	0810	15.0	15.4	4.1	69.6	29.61
Closing Calibration	1510	14.8	15.0	4.1	70.1	29.44
Acceptable Range	n/a	13.5 - 16.5	13.5 - 16.5	2.5 - 5.5	55 - 85	n/a

LADBS Certification Info

Methane Testing License #10231
Instrument: Landtec GEM 5000
Instrument Accuracy: ±1.5% CH_4
Landtec Equipment ID#: 022
Manometer ID#: 023

	Point ID	Sample Time	Probe Depth (ft)	CH_4 (%)	CO_2 (%)	O_2 (%)	N_2 (%)	Barometric Pressure ("Hg)	Probe Pressure ("H_2O)	Field Notes
1	LA1 1-62	0815	5	28.5	12.1	0.0	59.4	29.61	-1.2	
2	LA1 1-166	0845	Vent Pipe	0.1	0.2	20.8	79.0	29.69	N/A	Vent pipe, no probe
3	STK 3	0858	5	6.8	13.7	0.1	79.5	29.63	0.0	
4	BC 14	0931	5	0.2	5.5	13.5	80.3	29.63	0.0	
5	LA1 1-8	1003	5	0.8	19.0	0.0	79.9	29.63	0.0	
6	T-VIC 70	1045	5	0.1	10.3	9.8	79.8	29.74	0.0	
7	VRU 125	1116	5	0.1	0.9	20.1	79.0	29.63	0.0	
8	WRZV 312	1139	5	0.1	2.3	18.6	79.0	29.67	0.0	
9	Vickers 1-105	1207	5	17.2	14.7	0.0	67.3	29.55	0.0	
10	LA1 1-59	1230	5	1.6	19.0	0.1	78.6	29.64	0.0	

Site Notes (e.g. weather, visitors, scope deviations, health & safety issues, etc.):

Mobile Geochemistry Inc.

Log Sheet: Landtec Meter

H&P Project #: SCS092721-SP10/TECH/LAN
Site Address: 5640 S. Fairfax Los Angeles
Consultant: SCS Engineers
Consultant Rep(s): Jay Vargas

Date: 9/27/21
Page: 2 of 2
H&P Rep(s): B. Villarosales
J. Vandenwal

Reviewed: EC
Scanned: MM

Landtec GEM 5000 Calibration

	Time	CH_4 (%)	CO_2 (%)	O_2 (%)	N_2 (%)	Barometric Pressure ("Hg)
Calibration Standard	n/a	15	15	4	70	n/a
Opening Calibration	0810	15.0	15.4	4.1	79.6	29.61
Closing Calibration	1510	14.8	15.0	4.1	70.1	29.44
Acceptable Range	n/a	13.5 - 16.5	13.5 - 16.5	2.5 - 5.5	55 - 85	n/a

LADBS Certification Info

Methane Testing License #10231
Instrument: Landtec GEM 5000
Instrument Accuracy: ±1.5% CH_4
Landtec Equipment ID#: 022
Manometer ID#: 023

	Point ID	Sample Time	Probe Depth (ft)	CH_4 (%)	CO_2 (%)	O_2 (%)	N_2 (%)	Barometric Pressure ("Hg)	Probe Pressure ("H_2O)	Field Notes
1	VRV 266	1309	5	0.4	20.4	0.0	79.0	29.62	0.0	
2	VRV 186	1328	5	0.6	14.3	0.1	84.2	29.62	0.0	
3	LA1 1-37	1355	5	2.5	~~10.1~~ 15.1	0.2	82.0	29.60	~~0~~ 4.9	
4	BC 22	1443	5	0.0	0.6	19.9	79.4	29.48	0.0	
5	BC 53	1507	5	0.0	2.6	18.7	78.6	29.44	0.0	
6										
7										
8										
9										
10										

Site Notes (e.g. weather, visitors, scope deviations, health & safety issues, etc.):

Appendix D

Historical Abandoned Well Soil Gas Results, 2009 to Present

Table 1
Summary of Analytical Results for Soil Gas Samples
Inglewood Oil Field
5640 South Fairfax Avenue
Los Angeles, California 90056

Sample Number (or Boring ID)[1]	Sampling Date	Soil Vapor (ASTM D1945)				GEM Readings (H&P)
		Carbon Dioxide	Oxygen	Nitrogen	Methane	
		Percent by Volume			Parts per million by volume (ppmv)	
STK 3	August 26, 2019	N/A	N/A	N/A	**4,000**	N/A
	February 25, 2020	8.5	0.9	69	**210,000**	21,700
	February 25, 2020 (DUP)	N/A	N/A	N/A	**210,000**	N/A
	September 9, 2020	10	5.0	64	**180,000**	24,400
	September 27, 2021	12	3.8	79.5	**62,000**	68,000
LAI 1-62	August 26, 2019	N/A	N/A	N/A	**170,000**	N/A
	February 25, 2020	1.7	6.5	63	**360,000**	N/A
	September 24, 2020	9.0	4.7	70	**150,000**	251,000
	September 27, 2021	10	3.0	59.4	**250,000**	285,000
BC 14	August 26, 2019	N/A	N/A	N/A	**7,200**	N/A
	February 25, 2020	6.3	12.5	81	<19	0
	September 9, 2020	12	5.9	82	**3,100**	5,000
	September 27, 2021	6.2	14.0	80.3	<10	2,000
LAI 1-8	August 26, 2019				**18,000**	N/A
	February 25, 2020	0.7	85.0	29.8	**9,100**	1,500
	September 9, 2020	16.0	5.0	77	**7,500**	7,000
	September 9, 2020 (REP)	17	4.4	78	**7,500**	7,000
	September 27, 2021	16	4.4	79.9	**980**	800
LAI1-21	August 26, 2019	N/A	N/A	N/A	**1,300**	N/A
	August 26, 2019 (DUP)	N/A	N/A	N/A	**1,300**	N/A
	September 10, 2020	5.8	16	79.0	<10	0/0
	September 10, 2020 (REP)	6.0	15	79.0	<10	N/A
LAI 1-166	August 26, 2019	N/A	N/A	N/A	**710,000**	N/A
	February 25, 2020	2.9	0.8	9.2	**830,000**	N/A

Sample Number (or Boring ID)[1]	Sampling Date	Soil Vapor (ASTM D1945)				GEM Readings (H&P)
		Carbon Dioxide	Oxygen	Nitrogen	Methane	
		Percent by Volume			Parts per million by volume (ppmv)	
EAP 1-100	September 9, 2020	4.0	6.9	64	**620,000**	863,000
	September 30, 2021	3.7	9.9	42.7	**350,000**	447,000
Vickers 1-008	August 26, 2019	N/A	N/A	N/A	<18	N/A
T-VIC 31	August 26, 2019	N/A	N/A	N/A	<18	N/A
BC 18	August 26, 2019	N/A	N/A	N/A	**66**	N/A
	September 10, 2020	1.6	19.0	79	<10	0
BC 53	September 9, 2020	1.1	19	80	**54**	0
	September 27, 2021	1.5	20	78.6	<10	0
BC 333	September 9, 2020	2.1	18	80	**19**	0
BC 71	September 9, 2020	1.4	19	79	**15**	0
BC 24	September 9, 2020	2.6	19	79	**11**	0
BC 105	September 9, 2020	1.3	20	79	**11**	0
BC 27	September 9, 2020	4.0	16	80	**11**	0

Sample Number (or Boring ID)[1]	Sampling Date	Soil Vapor (ASTM D1945)				GEM Readings (H&P)
		Carbon Dioxide	Oxygen	Nitrogen	Methane	
		Percent by Volume			Parts per million by volume (ppmv)	
BC 36	September 9, 2020	4.4	17	79	<10	0
BC 22	September 27, 2021	0.38	20	79.4	<10	0
BC 321	September 30, 2021	9.5	11	80	<10	0
BC 12	September 30, 2021	0.73	20	80.5	<10	0
LAI 1-18	September 10, 2020	1.7	20	79	<10	0
LAI 1-182	September 10, 2020	6.4	15	78	<10	0
LAI 1-206	September 30, 2021	12.0	7.7	81.6	**11**	0
VRU 266	September 10, 2020	12	7.7	75	**35,000**	71,000
	September 27, 2021	18	3.1	79	**1,400**	0
VRU 186	September 10, 2020	12	4.4	75	**61,000**	86,000
	September 27, 2021	15	3.6	84.2	**5,300**	0
VRU 190	September 10, 2020	3.7	18	78	**15**	0
LAI 1-27	September 10, 2020	11	5.1	82	**9,100**	13,000
	September 30, 2021	12	4.0	85.9	**1,700**	0
	September 30, 2021 (REP)	12	3.9	85.9	**2,100**	0
VRU 128	September 10, 2020	2.7	18	79	<10	0
Dabney 3	September 10, 2020	1.1	20	79	<10	0
T-VIC 14	September 10, 2020	0.3	21	79	<10	0
T-VIC 15	September 10, 2020	1.6	19	79	<10	0
T-VIC 70	September 10, 2020	8.0	11	81	**170**	0
	September 27, 2021	8.6	12	79.8	**49**	0
T-VIC 9	September 10, 2020	1.6	19	79	<10	0
Vickers 2-1	September 10, 2020	0.77	20	79	<10	0
Vickers 1-5	September 10, 2020	2.8	18	79	<10	0
Vickers 1-9	September 10, 2020	2.5	19	79	<10	0
BC 11	September 23, 2020	0.96	21	78	<10	0
LAI 1-235	September 23, 2020	9.7	6.7	84	**260**	0

Sample Number (or Boring ID)[1]	Sampling Date	Soil Vapor (ASTM D1945)				GEM Readings (H&P)
		Carbon Dioxide	Oxygen	Nitrogen	Methane	
		Percent by Volume			Parts per million by volume (ppmv)	
LAI 1-236	September 30, 2021	12	3.0	85.8	**4,700**	**1,200**
LAI 1-268	September 23, 2020	12.0	10	75	**17,000**	34,000
	September 30, 2021	20.0	4.6	70.9	**19,000**	35,000
LAI 1-254	September 23, 2020	6.8	14	79	<10	0
LAI 1-169	September 23, 2020	2.8	18	79	<10	0
LAI 1-37	September 23, 2020	13	4.8	77	**42,000**	57,000
	September 27, 2021	17	3.7	82	**23,000**	25,000
LAI 1-171	September 30, 2021	1.3	20	79	<10	0
VRU 133	September 23, 2020	5.4	16	79	<10	0
	September 23, 2020 (REP)	5.2	16	79	<10	0
VRU 137	September 23, 2020	11	11	79	<10	0
VRU 173	September 23, 2020	4.9	17	78	<10	0
VRU 158	September 23, 2020	2.7	18	79	<10	0
VRU 153	September 23, 2020	16	6.4	77	<10	0
VRU 125	September 27, 2021	0.70	20	79	<10	0
Vickers 1-105	September 23, 2020	5.6	12	76	**52,000**	245,000
	September 27, 2021	12	4.5	67.3	**160,000**	172,000
T-VIC 53	September 23, 2020	3.5	17	79	<10	0
Vickers 1-65	September 23, 2020	2.0	19	79	<10	0

Sample Number (or Boring ID)[1]	Sampling Date	Soil Vapor (ASTM D1945)				GEM Readings (H&P)
		Carbon Dioxide	Oxygen	Nitrogen	Methane	
		Percent by Volume			Parts per million by volume (ppmv)	
Vickers 1-18	September 23, 2020	1.8	19	79	<10	0
T-VIC 45	September 23, 2020	0.58	20	79	<10	0
T-VIC 43	September 23, 2020	4.9	14	81	<10	0
Vickers 2-5	September 23, 2020	2.4	18	79	<10	0
Vickers 2-15	September 23, 2020	2.2	19	79	<10	0
Vickers 2-11	September 23, 2020	1.1	20	79	<10	0
Vickers 1-52	September 23, 2020	1.6	20	79	<10	0
Dabney 6A	September 23, 2020	1.7	19	80	<10	0
LAI 1-12	September 23, 2020	1.5	20	78	<10	0
BC 61	September 24, 2020	1.4	19	79	<10	0
	September 24, 2020 (REP)	1.4	19	79	<10	0
LAI 1-256	September 24, 2020	2.8	18	79	<10	0
LAI 1-286	September 24, 2020	3.6	18	79	<10	0
	September 24, 2020 (REP)	3.5	18	79	<10	0
LAI 1-110	September 24, 2020	2.7	19	79	<10	0
BC 41	September 24, 2020	2.1	6.8	91	**1,500**	1,000
	September 30, 2021	4.9	18	76.9	<10	0
LAI 1-150	September 24, 2020	5.5	15	80	<10	0
LAI 1-13	September 24, 2020	15	10	75	<10	0
LAI 1-63	September 24, 2020	2.7	19	79	<10	0
	September 24, 2020 (REP)	3.0	18	79	<10	0
Vickers 1-90	September 24, 2020	1.1	21	78	<10	0
Vickers 1-25	September 24, 2020	3.8	17	79	<10	0
LAI 1-65	September 24, 2020	1.6	20	79	<10	0
Vickers 1-43	September 24, 2020	0.38	14	86	**16**	0
Sentous 3	September 24, 2020	0.99	21	78	<10	0
LAI 1-180	September 24, 2020	0.8	20	79	<10	0

Sample Number (or Boring ID)[1]	Sampling Date	Soil Vapor (ASTM D1945)				GEM Readings (H&P)
		Carbon Dioxide	Oxygen	Nitrogen	Methane	
		Percent by Volume			Parts per million by volume (ppmv)	
LAI 1-281	September 24, 2020	1.9	20	78	<10	0
LAI 1-32	September 24, 2020	3.9	17	79	<10	0
LAI 1-59	September 24, 2020	14	5.8	78	**11,000**	23,000
	September 27, 2021	18	5.6	78.6	**8,500**	16,000
LAI 1-28	September 24, 2020	0.98	20	79	<10	0
WRZU 312	September 27, 2021	1.9	19	79	<10	0
	September 27, 2021 (REP)	2.0	19	79	<10	0

Notes:

bgs = below ground surface

[1] = Sample designation provied by Sentinel Peak Resources

DUP = Duplicate sample

REP = Replicate Sample

N/A = Not applicable

SENTINEL PEAK RESOURCES LLC

ABANDONED WELL SOIL GAS TESTING RESULTS, 2009 TO 2021

Map ID Number	Well Name	METHANE MONITORING RESULTS (ppmv)														
		2009 to 2013 / 5-YEAR CYCLE					2014 TO 2018 5-YEAR CYCLE					2019 TO 2023 5-YEAR CYCLE				
		Yr: 2009	Yr: 2010	Yr: 2011	Yr: 2012	Yr: 2013	Yr: 2014	Yr: 2015	Yr: 2016	Yr: 2017	Yr: 2018	Yr: 2019	Yr. 2020	Yr. 2021	Yr. 2022	Yr. 2023
1	STK 1	8.7	11.2								-	-	-	-		
1	STK 27	-	-	213.0	15.4	5.5	-	-	-	-	-	-	-	-		
2	STK 11	70.5	494.0	1.8	25.5	11.3	-	-	-	-	18	-	-	-		
3	STK 3	21.2	268.0	30.6	51.9	10.2	31.8	-	-	-	44	210,000	180,000	62,000	Resample	
4	BC 61	3.8	10.5	-	-	-	-	3.2	-	-	-	-	< 10	-		
5	BC 321	577.0	9.8	1.3	-	-	-	-	0.9	-	-	-	-	< 10		
6	BC 11	2.6	7.8	-	-	-	-	2.9	-	-	-	-	< 10	-		
7	LAI 1-268	4.0	6.3	-	-	-	-	2.6	-	-	-	-	17,000	19,000	Resample	
8	LAI 1-122	41.9	4.1							-	18	-	-	-		
8	LAI1-2	-	-	1,346.0	23.4	7.2	-	-	-	-	-	-	-	-	Schedule	
9	LAI 1-254	5.9	22.6	-	-	-	-	10.4	-	-	-	-	< 10	-		
10	LAI 1-253	2.2	8.2							-	20	-	-	-		
10	LAI1-258	-	-	124.0	25.2	37.4	-	-	-	-	-	-	-	-		
11	LAI 1-62	2.5	7.2	-	-	-	-	254	12.1	170	23	360,000	251,000	250,000	Resample	
12	LAI 1-235	1.0	13.1	-	-	-	-	1.5	-	-	-	-	260	4,700	Resample	
13	LAI 1-171	96.7	10.5	5.3	-	-	-	-	1.2	-	-	-	-	< 10		
14	LAI 1-69	13.1	14.9							-	-	-	-	-	Schedule	
14	LAI1-14	-	-	4.8	19.5	-	-	-	-	0	-	-	-	-		
15	LAI 1-206	174.0	2.5	0.8	-	-	-	-	1.2	-	-	-	-	11		
16	BC 12	230.0	7.2	1.5	-	-	-	-	14.2	-	-	-	-	< 10		
17	BC 14	4.9	4.1	-	-	-	-	127	1.1	250	10,000	< 18	3,100	< 10	Resample	
18	LAI 1-37	7.3	7.0	-	-	-	-	4.3	-	-	-	-	42,000	23,000	Resample	
19	LAI 1-25	4.2	799.0	1.9	8.6	-	-	-	-	<0.0020	-	-	-	-	Schedule	
20	BC 41	4.5	3.2	-	-	-	-	1.5	-	-	-	-	1,500	< 10	Resample	
21	BC 71	3.7	5.6	-	-	-	-	2.1	-	-	-	-	15	-		
22	BC 22	111.0	4.8	1.5	-	-	-	-	47.4	-	-	-	-	< 10		
23	BC 333	5.8	3.5	-	-	-	-	2.3	-	-	-	-	19	-		
24	BC 53	5.1	4.3	-	-	-	-	4.6	-	-	-	-	54	< 10	Resample	
25	BC 55	123.0	938.0	0.6	21.1	-	-	-	-	0	-	-	-	-	Schedule	
26	BC 36	4.3	13.9	-	-	-	-	3.4	-	-	-	-	< 10	-		
27	BC 24	5.8	0.3	-	-	-	-	3.4	-	-	-	-	11	-		
28	BC 105	2.6	1.8	-	-	-	-	1.9	-	-	-	-	11	-		
29	BC 27	4.3	5.2	-	-	-	-	3.8	-	-	-	-	11	-		
30	LAI 1-18	8.4	9.0	-	-	-	-	4.0	-	-	-	-	< 10	-		
31	LAI 1-8	6.5	611.0	26.0	257.0	13.8	29.4	-	-	-	-	9,100	7,500	980	Resample	
32	LAI 1-27	10.3	16.3	-	-	-	-	4.9	-	-	-	-	9,100	2,100	Resample	
33	LAI 1-95	5.8	483.0	2.0	11.9	-	-	-	-	0	-	-	-	-	Schedule	
34	LAI 1-182**	5.8	4.2	1.7	-	-	-	6.7	-	-	-	-	< 10	-		
35	VRU 188	4.4	13.6						-	-	22	-	-	-	Schedule	
35	LAI1-21	-	-	8.5	40.4	-	-	-	-	290	-	1,300	< 10	-		
36	VRU 186	5.5	24.7	-	-	-	-	3.5	-	-	-	-	61,000	5,300	Resample	
37	VRU 266	47.0	10.4	-	-	-	-	3.1	-	-	-	-	35,000	1,400	Resample	
38	VRU-190	6.9	11.3	-	-	-	-	3.9	-	-	-	-	15	-		
39	LAI 1-12	8.8	8.5	-	-	-	-	3.9	-	-	-	-	< 10	-		
40	Vickers 1-90	4.4	8.9	-	-	-	-	2.6	-	-	-	-	< 10	-		
41	Vickers 1-52	5.3	17.3	-	-	-	-	1.9	-	-	-	-	-	-		
42	LAI 1-150	4.7	3.7	-	-	-	-	3.8	-	-	-	-	< 10	-		
43	LAI 1-286	5.1	10.9	-	-	-	-	2.2	-	-	-	-	< 10	-		
44	LAI 1-256	21.2	6.4	-	-	-	-	4.1	-	-	-	-	< 10	-		
45	LAI 1-166	32.7	2,108.0	114.0	113.0	43.2	13.2	-	-	-	-	830,000	620,000	350,000	Resample	
46	Vickers 1-12	5.6	3.4						-	-	-	-	-	-	Schedule	
46	Vickers 1-52	-	-	5.6	4.3	-	-	-	-	0	-	-	< 10	-	Schedule	
47	Vickers 1-65	5.4	3.8	-	-	-	-	5.6	-	-	-	-	< 10	-		
48	Vickers 1-18	5.0	5.7	-	-	-	-	3.8	-	-	-	-	< 10	-		
49	TVIC 53	4.8	4.1	-	-	-	-	3.9	-	-	-	-	< 10	-		
50	TVIC 45	6.2	4.3	-	-	-	-	1.6	-	-	-	-	< 10	-		
51	Vickers 2-11	3.5	2.5	-	-	-	-	0.8	-	-	-	-	< 10	-		

SENTINEL PEAK RESOURCES LLC

ABANDONED WELL SOIL GAS TESTING RESULTS, 2009 TO 2021

Map ID Number	Well Name	METHANE MONITORING RESULTS (ppmv)														
		2009 to 2013 / 5-YEAR CYCLE					2014 TO 2018 5-YEAR CYCLE					2019 TO 2023 5-YEAR CYCLE				
		Yr: 2009	Yr: 2010	Yr: 2011	Yr: 2012	Yr: 2013	Yr: 2014	Yr: 2015	Yr: 2016	Yr: 2017	Yr: 2018	Yr: 2019	Yr. 2020	Yr. 2021	Yr. 2022	Yr. 2023
52	Vickers 2-15	10.7	5.7	-	-	-	-	3.1	-	-	-	-	< 10	-		
53	Vickers 2-37	2.4	775.0	551.0	6.1	12.8	-	-	-	-	24	-	-	-		
54	LAI 1-9	2.7	12.9						-	-	-	-	-	-		
54	VRU-LAI1-LW-	-	-	13.1	16.9	-	-	-	-	<0.0020	-	-	-	-	Schedule	
55	Vickers 1-008	3,627.0	2,468.0	1.8	4.2	-	-	-	-	70	25	< 18	-	-	Schedule	
56	VRU 158	6.3	6.1	-	-	-	-	1.5	-	-	-	-	< 10	-		
57	VRU 173	9.7	10.4	-	-	-	-	1.4	-	-	-	-	< 10	-		
58	WRZU 312	1,784.0	3.9	3.8	-	-	-	-	1.0	-	-	-	-	< 10		
59	VRU 142A	3.5	79.1	2.1	46.7	-	-	-	-	<0.0020	-	-	-	-	Schedule	
60	VRU 135	3.8	108.0	2.0	7.2	-	-	-	-	0	-	-	-	-	Schedule	
61	VRU 133	2.2	7.1	-	-	-	-	2.7	-	-	-	-	< 10	-		
62	VRU 137	7.6	4.5	-	-	-	-	2.7	-	-	-	-	< 10	-		
63	Dabney 6A	4.4	14.3	-	-	-	-	13.3	-	-	-	-	< 10	-		
64	Dabney 3	11.5	8.7	-	-	-	-	3.0	-	-	-	-	< 10	-		
65	VRU 103	6.6	43.5						-	-	23	-	-	-		
65	TVIC-3	-	-	88.3	8.9	18.2	-	-	-	-	-	-	-	-		
66	VRU 153	2.5	6.4	-	-	-	-	1.5	-	-	-	-	< 10	-		
67	Vickers 1-105	2.6	5.2	-	-	-	-	3.5	-	-	-	-	52,000	180,000	Resample	
68	Vickers 1-9	4.1	3.0	-	-	-	-	1.1	-	-	-	-	< 10	-		
69	T-VIC 43	2.8	1.9	-	-	-	-	3.5	-	-	-	-	< 10	-		
70	Vickers 2-4	3.0	5.3						-	-	-	-	-	-	Schedule	
70	TVIC-26	-	-	4.7	2.0	-	-	-	-	<0.0026	-	-	-	-	Schedule	
71	Vickers 1-5	3.6	6.4	-	-	-	-	1.2	-	-	-	-	< 10	-		
72	T-VIC 9	1.3	3.0	-	-	-	-	3.9	-	-	-	-	< 10	-		
73	Vickers 2-1	3.1	8.7	-	-	-	-	3.6	-	-	-	-	< 10	-		
74	T-VIC 31	2.6	5.9						-	-	25	< 18	-	-		
74	TVIC-42	-	-	223.0	3.8	6.9	-	-	-	-	-	-	-	-		
75	T-VIC 15	16.8	4.1	-	-	-	-	2.0	-	-	-	-	< 10	-		
76	T-VIC 14	2.1	14.4	-	-	-	-	8.0	-	-	-	-	< 10	-		
77	T-VIC 12	1.6	95.9	1.7	3.7	-	-	-	-	<0.0020	-	-	-	-	Schedule	
78	VRU 128	1.6	1.9	-	-	-	-	0.5	-	-	-	-	< 10	-		
79	VRU 125	2,661.0	5.3	18.1	-	-	-	-	1.2	-	-	-	-	< 10		
80	BC 18	1,236.0	12.9	90.2	92.8	14.1	4.3	-	-	-	-	66	-	-		
81	T-VIC 70	3.6	6.6	-	-	-	-	0.6	-	-	-	-	170	49	Resample	
82	Vickers 2-5	3.5	12.0	-	-	-	-	9.2	-	-	-	-	< 10	-		
83	LAI 1-13	28.6	8.7	-	-	-	-	3.8	-	-	-	-	< 10	-		
84	LAI 1-63	4.8	7.2	-	-	-	-	2.9	-	-	-	-	< 10	-		
85	LAI 1-65	2.9	3.8	-	-	-	-	4.7	-	-	-	-	< 10	-		
86	Sentous 3	7.3	8.9	-	-	-	-	6.3	-	-	-	-	< 10	-		
87	LAI 1-180	25.2	9.2	-	-	-	-	4.3	-	-	-	-	< 10	-		
88	LAI 1-32	11.6	6.6	-	-	-	-	3.1	-	-	-	-	< 10	-		
89	LAI 1-281	2.2	5.2	-	-	-	-	2.5	-	-	-	-	< 10	-		
90	LAI 1-59	3.4	7.4	-	-	-	-	4.7	-	-	-	-	11,000	8,500	Resample	
91	LAI 1-28	29.8	6.6	-	-	-	-	4.7	-	-	-	-	< 10	-		
92	Vickers 1-43	3.5	15.5	-	-	-	-	10.7	-	-	-	-	< 10	-		
93	Vickers 1-25	4.5	9.1	-	-	-	-	2.5	-	-	-	-	< 10	-		
94	LAI 1-169	5.6	4.5	-	-	-	-	2.4	-	-	-	-	< 10	-		
95	LAI 1-110	2.9	9.8	-	-	-	-	1.7	-	-	-	-	< 10	-		
96	Vickers 1-55	1.2	7.3						-	-	-	-	-	-		
Total Sampled		96	96	31	23	11	4	65	9	9	11	6	69	23	31	
# > 50 ppmv methane		11	12	8	4	-	-	2	-	4	1	6	16	12	TBD	

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[1] > 50 Sample results greater than 50 ppmv methane.

[2] Scheduled = Map ID and/or abandon well locations are scheduled, at a minimum, on a 5 year rotation basis.

[3] Resample = If a test location exceeds 50 ppmv methane, it must be retested the following two years to affirm < 50 ppmv methane. Additionally, outcomes of sampling and/or laboratory quality control (QC) may necessitate resampling.

Appendix E

2012 Tech Memo (Cardno-Entrix)

Technical Memorandum

Date February 17, 2012

To: Candace Salway
Plains Exploration and Production Company

From: Daniel Tormey, Ph.D., P.G.

RE: **PXP Inglewood Oil Field: Subsurface Methane Gas Investigation in the LAI South Lease**

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Executive Summary

Cardno ENTRIX was retained by Plains Exploration and Production Company (PXP) to review soil gas analytical results and provide guidance regarding elevated concentrations of methane gas identified on the LAI South Lease (subject area) of the Inglewood Oil Field (field) located at 5640 South Fairfax Avenue in Los Angeles, California (Figures 1 and 2). The elevated methane gas levels were initially detected during a field wide gas assessment conducted by GeoScience Analytical Inc. (GeoScience) in October 2007. Following the initial detection in October 2007, PXP assumed the methane may have been migrating from nearby production well LAI1-130. The well was subsequently plugged and abandoned in December 2007 in accordance with the California Division of Oil, Gas, and Geothermal Resources (DOGGR) well abandonment protocols. Older plugged and abandoned wells located in the vicinity of LAI1-130 were inspected and reevaluated for potential leaks. The physical inspection identified no leaks. In addition, subsequent soil gas sampling indicated lower concentrations of methane in the subsurface in the vicinity of these other wells, thus eliminating them as potential sources.

Since the initial sampling event, a number of additional focused soil gas surveys have been conducted in the general vicinity of the initial high readings. The methane levels have remained relatively high. Therefore, additional geochemical characterization of the gas was conducted in an effort to identify the source of the methane. A geological review has also been conducted to identify potential migration pathways.

The results of the geochemical assessment indicated that the source of the soil gas is a relatively shallow, biogenic material, rather than the oil-bearing formation. The data revealed that the composition of the soil gas is greater than 99.7 percent methane in composition, with minor amounts of ethane. In contrast, it is known that gas from the formation at the Inglewood Oil Field, produced along with the oil, is less than 89 percent methane, and processed gas from the field's Gas Plant is approximately 89 percent methane. Therefore, the detected gas does not appear to be field gas or processed gas. In addition, carbon and hydrogen isotopic analysis of both the soil gas and the formation gas indicate that the soil gas is from microbial degradation of biogenic material, likely at shallow depths, while the formation gas is thermogenic, as expected for natural

gas from an oil source. Based on the geochemical characterization and the isotopic analysis, the source of soil gas methane is biogenic in origin and not from the oil-bearing formation.

As to the migration pathway, the only likely potential well conduit (LAI1-130) was plugged and abandoned after the initial detections. Older plugged and abandoned wells in the vicinity were tested and showed no leak, and more focused soil gas analysis did not detect elevated levels near those wells. Two pipelines run through the subject area (SoCal Gas and Chevron), but neither is a likely source based on the more focused study. There are known locations of near-surface faults in the vicinity. This study concludes that a fault in the vicinity is the likely conduit for the detected methane.

The Inglewood Oil field is not located in an established methane zone or buffer zone by Los Angeles County. However, according to the County's Methane Map (attached), the field is surrounded by such zones. Our determination based on the information is that the methane is naturally occurring, and migrating along natural features such as fault planes to reach the surface. It would be warranted to include this area in the County's Methane Map.

Summary of Existing Conditions for Soil Gas at the Inglewood Oil Field

The following is excerpted from the Environmental Impact Report for the Inglewood Oil Field Community Services District (CSD). The section gives background information on detections of methane and Oil Field gases in the Los Angeles Basin, and the Inglewood Oil Field.

"*The Los Angeles Basin has numerous Oil Field gas seeps. Oil Field gases have a propensity to migrate to the surface along faults and poorly completed and/or abandoned wellbores. Furthermore, the upward migrating gases will accumulate in the near-surface collector zones, often trapped and concealed within the permeable gravel and sand lenses. In the Los Angeles Basin, many homes and commercial structures have been constructed directly over old oil wells that have not been properly sealed and no mitigation measures have been taken to seal out the seeping gases*. "

In an effort to avoid land use conflicts, Senate Bill 1458 (Roberti) in 1986 directed the Department of Conservation and DOGGR to identify areas with the greatest potential for gas migration into structures, and therefore causing potential health and safety issues. A *Study of Abandoned Oil and Gas Wells and Methane and Other Hazards Gas Accumulations* (Geoscience, 1986) identified eight high risk areas in the Southern California region that have the potential to cause a health and safety issue. These areas are categorized based on their locations within urban areas, having a history of seeps, and history of having plugged and abandoned wells within their boundaries. The areas identified include: Salt Lake Oil Field (City of Los Angeles – Fairfax/Wilshire District); Newport Oil Field (City of Newport Beach); Santa Fe Springs Oil Field (City of Santa Fe Springs); the Rideout Heights area of the Whittier Oil Field (City of Whittier); Los Angeles City Oil Field (City of Los Angeles); Brea-Olinda Oil Field (City of Brea); Summerland Oil Field (City of Summerland); and Huntington Beach Oil Field (City of Huntington Beach). Gas samples were collected at all locations and analyzed to determine the hydrocarbon gas content and the origin of the soil gases. Of all the samples collected and indicating gas seepage, only two had the potential of originating from old oil and gas wells. In these two locations (Newport Beach and Huntington Beach) it was suspected that structures were built over old wells that were not plugged and abandoned to current standards. Although these old wells could have been the cause of the gas seepage, gas analysis indicated that the gas was biogenic in nature (i.e., not related to the oil and gas productive zone in the wells) and therefore the wells may have only been a conduit for the shallow biogenic gas (DOGGR, personal communication 2008).

In addition, several fault systems traverse the Salt Lake Oil Field, similar to the Newport Beach and Huntington Beach Oil Fields. In none of these three areas were there any evidence indicating seepage of gas associated with the oil and gas productive zones. Rather, the detected gas was overwhelmingly biogenic in nature and showed no systematic pattern in its placement, as would be the case with oil and gas wells. Thus, the 1986 study concluded

that if there is seepage along faults, it is because the faults are acting as conduits for recently-generated, near-surface biogenic gas (DOGGR, personal communication 2008).

In summary, based on the 1986 study of the areas most likely to be subject to gas migration from Oil Field sources, most of the gas detected was biogenic gas, rather than oil-related thermogenic gas. In some cases, improperly abandoned oil wells acted as conduits for this non-oil related gas and, in other cases, faults acted as the conduits to the surface.

Types of Gases at the Inglewood Oil Field

There are three types of gases that may exist within the geological and soil units underlying the active surface of the Inglewood Oil Field, including biogenic (swamp or sewer) gas, thermogenic (field) gas, and processed natural (or piped) gas.

Biogenic gas is primarily methane with carbon dioxide and sulfide gases that result from decomposition of organic material, such as from former marshy areas or from sewers. Although biogenic gas contains mostly methane and carbon dioxide, these gases also consist of smaller amounts of ethane, propane, and butane, as well as trace amounts of hydrogen sulfide and ammonia. In the active surface field area, marshy areas were formerly present immediately north of the Baldwin Hills, in the former floodplain of Ballona Creek (Hsu et al. 1982). In addition, the large-diameter (approximately 15-foot [4.5 m]) City of Los Angeles North Outfall Replacement Sewer underlies the active surface field boundary. Both of these features could be sources of biogenic gas.

Thermogenic gas is generated at depth when increased temperatures and pressures alter organic material. Similar to biogenic gas, thermogenic gas contains a broad range of gas components including methane, ethane, propane, and butane, as well as trace amounts of toxic gases, including hydrogen sulfide. The Inglewood Oil Field produces oil and associated thermogenic gas.

In contrast to the biogenic gases and thermogenic gases, processed natural gas is primarily methane that remains from thermogenic gas after most of the heavier gas components, including the toxic substances, are removed. These various types of gases exhibit distinct chemical characteristics, which permits “finger-printing” of gases, or differentiation between gas types (California Public Utilities Commission 2004).

Soil Gas Testing at the LAI South Lease

The following section summarizes the series of soil gas testing that has been performed in the LAI South Lease area from 2007 through 2011. The locations of the sampling points are depicted in Figures 3 and 4.

Historical Sampling 2007 to 2009

Between October 29, 2007 and October 12, 2009, six focused shallow soil gas surveys were conducted in the LAI South Lease area. In total, 60 soil gas samples were collected during the 2007 to 2009 sampling events, from 23 locations including four samples collected from within the LAI South Biofarm and 11 samples collected in areas targeting the potential sources of the methane gas. The potential sources investigated were nearby production well LAI 1-223, a Chevron pipeline, an idle SoCal Gas pipeline, and an area of infill.

The soil gas samples were collected and analyzed by GeoScience. The soil probes were advanced to a depth of approximately four feet below ground surface (bgs) using a slide hammer. The soil gases were extracted from each of the soil probes and transported to the GeoScience laboratory for analysis of C_1-C_7 hydrocarbons and hydrogen sulfide.

The most significant finding is that the soil gas consists of almost pure methane at approximately 99.7 percent. Compared to processed gas collected from the PXP Gas Plant (89 percent methane) and field gas from the

formation (less than 89 percent methane), the soil gas is much purer in methane and indicates a different source than the natural gas related to oil production.

The methane gas concentrations have remained consistently elevated throughout the six sampling events ranging between 144 parts per million by volume (ppmv) to 981,400 ppmv. The detections are non-systematic. That is, individual sample points go up and down without regard to adjacent sample points, and the high points for one sample round become the low ones in another sample round. The analytical results are presented in Table 1. Table 1 also presents the percentage of the hydrocarbon gases that are methane and ethane.

Isotope Sampling – September 2011

In an effort to better define the source of the methane is shallow soil gas, samples of soil gas and field gas were collected in September 2011 and analyzed for carbon and hydrogen isotopes. Methane consists of carbon and hydrogen; analysis of the isotopes is a reliable determinant of the source of the gas. A description of the approach provided by the laboratory and a figure showing a comparison of collected samples is provided as an attachment. The results of the isotopic analysis clearly indicate that the soil gas methane is from microbial gas, typically a shallow level biogenic source. The field gas, collected from the oil wells, is clearly distinguished from the soil gas and, as expected, falls into the category of a thermogenic gas.

Shallow Soil Gas Survey – December 2011

On December 9, 2011 Cardno ENTRIX performed an additional shallow methane survey to delineate shallow methane concentrations around the areas of historical detections. Vironex was subcontracted to install temporary vapor points using a Geoprobe® direct-push rig. The temporary vapor points were built by first advancing a borehole to approximately four feet bgs. The probe was then constructed using Nylaflow® tubing and a porous disposable tip. The tip was placed in the middle of a one-foot sand pack at the bottom of the borehole. Above the sand, a seal was created using hydrated bentonite chips. Dehydrated bentonite chips were also used to fill the borehole from the hydrated seal to the surface. The temporary vapor points were allowed to equilibrate for at least 30 minutes prior to sampling.

A mobile laboratory operated by Jones Environmental (Jones) was subcontracted to analyze samples collected from the temporary vapor points. Each vapor probe was checked for leaks prior to sampling. Once a vapor probe was confirmed to be leak free, a sample was collected in a lab provided tedlar bag and analyzed for methane using the United States Environmental Protection Agency (USEPA) method 8015. Analytical results are provided as an attachment. Sampling locations and results for the delineation are shown on Figure 4.

The results, summarized in Table 2, indicate that methane concentrations in the shallow subsurface are ubiquitous and extend beyond the subject area, likely throughout this portion of the South LAI lease. Detections ranged from 1,130 ppm to 520,900 ppm and are consistent with historical sampling results that were focused on the areas around the two gas pipelines.

Migration Pathway Abatement

Following the initial detection in October 2007, PXP assumed the methane may be migrating from nearby production well LAI1-130 and the well was plugged and abandoned in December 2007 in accordance with DOGGR well abandonment protocols. In addition, PXP records were searched for historic wells (1928 wells), as well as older plugged and abandoned wells located beneath the bioremediation cell. No historic wells were identified in the area, and the other wells were inspected and reevaluated for potential leaks. The physical inspection identified no leaks and the subsequent soil gas sampling indicates lower concentrations of methane, thus eliminating the biofarm as a potential source.

In regard to the other potential sources, the detections are as follows:

- Within the infill area, methane detections ranged between non-detect and 730,140 ppmv and ethane detections ranged between non-detect to 1,905 ppmv.
- Along the Chevron pipeline, methane detections ranged between 229 ppmv and 313,370 ppmv and ethane detections ranged between 2 ppmv and 811 ppmv.
- Along the SoCal pipeline, methane and ethane was non-detect.
- Near production well LAI 1-223, methane and ethane was non-detect.

Local Geology and LA County Methane Map

The Baldwin Hills are underlain by a faulted, northwest-trending anticline which is developed in sediments of Tertiary and Pleistocene age. Two principal northwesterly trending, nearly parallel faults offset the central portion of the hills, developing a down-dropped block or graben across the crest of the anticline. The more easterly of the two structures is the Newport-Inglewood fault; the other fault is unnamed. Both faults are offset by secondary cross faults which trend northeast. The block east of the Newport-Inglewood fault is composed of sediments of Pliocene age and older and is cut by several small unnamed faults. One such fault extends along the northeast border of the Baldwin Hills and may be related to the prominent escarpment in that area. A map depicting the known faults beneath the Baldwin Hills is included as an attachment.

The subject area is in the vicinity of the southern faults. These faults are likely acting as the conduits for the migration of shallow soil vapors. This finding is similar to that of 1986 DOGGR study which concluded that the source of methane is frequently shallow level biogenic material, and it frequently migrates along fault zones.

Due to the probability of methane gas releases from naturally occurring seeps, the City of Los Angeles has established a zoning ordinance identifying two zones, a Methane Zone and a Methane Buffer Zone. Special requirements for new construction, existing construction, and monitoring for methane have been established for these zones. Although the Baldwin Hills is not in a methane zone or methane buffer zone (attached), the field is surrounded by such. Accordingly, the evidence suggests that the methane detections beneath the site are part of a regionally-recognized zone of naturally-occurring methane.

Safe Working Practices around Methane

The accumulation of methane (actual or potential) is considered hazardous by the California Department of Toxic Substance Control (DTSC). Methane above the Lower Explosive Limit (LEL) of 53,000 parts per million (ppm) can result in asphyxiation and combustion.

Combustion occurs when an ignition source (e.g. pilot flame, electrical spark, mechanical spark, or cigarette) is present or when ambient concentrations exceed LEL in the presence of oxygen. Precaution must be taken during any earth-moving activity to minimize potential for combustion or asphyxiation. Prior to earth-moving activities, soils and air should be tested for the presence of methane. Methane monitoring devices similar to a MultiRAE™ or Q-RAE™, should be used when working in and around methane-rich environments. The device should constantly monitor ambient methane and oxygen levels (hydrogen sulfide detection is also recommended) to ensure safe working conditions at all times.

Earth-moving equipment should be equipped with non-sparking buckets and/or blades. It is recommended, if working in areas of high methane concentration, to periodically wet ground surface with water or fire suppressant foam to decrease the chance of combustion. Smoking within or adjacent to the known methane area is prohibited.

Conclusions

The results of this evaluation indicate that the source of methane detected in the subsurface is not oil-related, thermogenic gas. Rather, isotopic and geochemical analysis indicates that the source is shallow-level and biogenic. Potential wells that may serve as a conduit have been abandoned. The area geology suggests that faults act as the shallow conduits. The finding that shallow level microbial gases migrate along fault zones in this area would warrant inclusion on the City's Methane Zone map.

Tables

Table 1
PXP Inglewood Oil Field
Soil Gas Survey
LAI South Lease

Sampling Date	Cardno ENTRIX Sample ID	Hydrocarbons				
		Methane (ppmv)	Ethane (ppmv)	All Other Hydrocarbons (ppmv)	% Methane	% Ethane
10/29/2007	--	981,400	1,253	Propane 2.9, Iso-butane 11.6, Iso-pentane 2.8	99.87%	0.13%
1/18/2008	1N	379,930	858	<0.2	99.77%	0.23%
3/7/2008	1N	32,911	32	<0.2	99.90%	0.10%
6/18/2008	1N	574,170	562	<0.2	99.90%	0.10%
4/28/2009	1N	478,660	495	<0.2	99.90%	0.10%
10/12/2009	1N	941,250	1,815	<0.2	99.81%	0.19%
1/18/2008	2N	144	5	<0.2	96.97%	3.03%
3/7/2008	2N	84,020	42	<0.2	99.95%	0.05%
6/18/2008	2N	842,410	2,076	Propane 231.0	99.73%	0.25%
4/28/2009	2N	12,283	25	<0.2	99.79%	0.21%
10/12/2009	2N	770,620	1,975	<0.2	99.74%	0.26%
1/18/2008	3N	263,730	283	<0.2	99.89%	0.11%
3/7/2008	3N	432,210	55	<0.2	99.99%	0.01%
6/18/2008	3N	37,790	280	<0.2	99.26%	0.74%
4/28/2009	3N	2,351	<0.2	<0.2	99.96%	0.04%
10/12/2009	3N	811,580	2,373	<0.2	99.71%	0.29%
1/18/2008	1S	366,890	907	<0.2	99.75%	0.25%
3/7/2008	1S	23,980	18	<0.2	99.92%	0.08%
6/18/2008	1S	778,350	1,732	<0.2	99.78%	0.22%
4/28/2009	1S	975,170	1,941	<0.2	99.80%	0.20%
10/12/2009	1S	771,380	2,072	<0.2	99.73%	0.27%
1/18/2008	2S	327,480	731	<0.2	99.78%	0.22%
3/7/2008	2S	38,669	6	<0.2	99.98%	0.02%
6/18/2008	2S	24,680	510	<0.2	97.98%	2.02%
4/28/2009	2S	206,440	411	<0.2	99.80%	0.20%
10/12/2009	2S	362,900	1,007	<0.2	99.72%	0.28%
1/18/2008	3S	208,540	403	<0.2	99.81%	0.19%
3/7/2008	3S	239,380	30	<0.2	99.99%	0.01%
6/18/2008	3S	880,540	1,013	<0.2	99.89%	0.11%
4/28/2009	3S	651,230	1,145	<0.2	99.82%	0.18%
10/12/2009	3S	960,860	2,573	<0.2	99.73%	0.27%
1/18/2008	1E	522,340	952	<0.2	99.82%	0.18%
3/7/2008	1E	248,760	36	<0.2	99.99%	0.01%
6/18/2008	1E	872,690	1,011	<0.2	99.88%	0.12%
4/28/2009	1E	10,123	<0.2	<0.2	99.99%	0.01%
10/12/2009	1E	846,020	1,865	<0.2	99.78%	0.22%
1/18/2008	2E	262,900	595	<0.2	99.77%	0.23%
3/7/2008	2E	1,538	4	<0.2	99.75%	0.25%
6/18/2008	2E	504	2	<0.2	99.70%	0.30%
4/28/2009	2E	263,180	457	<0.2	99.83%	0.17%
10/12/2009	2E	1205	4	<0.2	99.69%	0.31%
1/18/2008	3E	8,787	64	<0.2	99.28%	0.72%
3/7/2008	3E	8,988	21	<0.2	99.77%	0.23%
6/18/2008	3E	325,640	853	<0.2	99.74%	0.26%
4/28/2009	3E	631,770	1,026	<0.2	99.84%	0.16%
10/12/2009	3E	567,870	1,635	<0.2	99.71%	0.29%

Notes:
ppmv = Parts Per Million by Volume
All Samples Analyzed by GeoScience Analytical

Table 2
Methane Delineation
Soil Gas Survey
PXP Inglewood Oil Field
LAI South Lease
December, 2011

Date	Cardno ENTRIX Sample ID	Methane (ppmv)	Methane %	Comment
12/9/2011	SVP-1-4	520,900	52.9	
12/9/2011	SVP-2-4	NS	NS	
12/9/2011	SVP-3-4	NS	NS	FID reading 5,372 ppm (ul)
12/9/2011	SVP-4-4	NS	NS	FID reading 2,000 ppm
12/9/2011	SVP-5-4	244,000	24.4	FID reading 5,372 ppm (ul)
12/9/2011	SVP-6-4	1,130	0.113	FID reading 3,000 ppm
12/9/2011	SVP-7-4	244,000	24.4	
12/9/2011	SVP-8-4	ND	ND	
12/9/2011	SVP-9-4	ND	ND	
12/9/2011	SVP-10-4	1,410	0.141	
12/9/2011	SVP-11-4	327,000	32.7	

Notes:
ppmv= parts per million volume
All samples analyzed by Jones Envionmental
ul = Upper Limit of FID unit

Figures

NORTH

CALIFORNIA

LEGEND

BOUNDARY INGLEWOOD OIL FIELD

Cardno ENTRIX

Site Location Map

PLAINS EXPLORATION AND PRODUCTION
INGLEWOOD OIL FIELD

Scale 1:1500	PROJECT No. 6088104	FIGURE. No. 1	DATE 5/11
Drawn By: JLC			

LEGEND

CHEVRON PIPELINE

SOCAL GAS PIPELINE

N

0 500 1000

APPROXIMATE SCALE IN FEET

Cardno ENTRIX

SUBJECT AREA
WITH PIPELINE LOCATIONS
PLAINS EXPLORATION AND PRODUCTION
INGLEWOOD OIL FIELD

Scale 1:500	PROJECT No.	FIGURE No.	DATE
Drawn By: JLC	6086104	2	10/11

LEGEND

- ID — SOIL GAS SAMPLE (APPROXIMATE LOCATION)
- (258) METHANE GAS CONCENTRATION–OCT 09 (PPMV IN 000'S)
- ACTIVE PRODUCTION/INJECTION WELL (APPROXIMATE LOCATION)
- ABANDONED PRODUCTION/INJECTION WELL (APPROXIMATE LOCATION)
- CHEVRON PIPELINE
- SOCAL GAS PIPELINE

N

0 90 180

APPROXIMATE SCALE IN FEET

Cardno ENTRIX

SOIL GAS SURVEY
SAMPLE LOCATIONS
PLAINS EXPLORATION AND PRODUCTION
INGLEWOOD OIL FIELD

Scale 1:90	PROJECT No. 6086104	FIGURE No. 3	DATE 10/11
Drawn By: JLC			

LEGEND

- SOIL GAS SAMPLE (APPROXIMATE LOCATION)
- (000) METHANE GAS CONCENTRATION–DEC 11 (PPMV IN 000'S)
- ACTIVE PRODUCTION/INJECTION WELL (APPROXIMATE LOCATION)
- ABANDONED PRODUCTOIN/INJECTION WELL (APPROXIMATE LOCATION)
- CHEVRON PIPELINE
- SOCAL GAS PIPELINE

100

GRAPHIC SCALE IN FEET

Cardno ENTRIX
Shaping the Future

Soil Gas Survey

Plains Exploration and Production
Inglewood Oil Field

Scale 1:100	PROJECT No.	FIGURE. No.	DATE
Drawn By: JJD	6086104	4	1/12

Attachments:

Los Angeles County Methane Map

Baldwin Hills Fault Map

Isotope Information

Laboratory Analytical Data – Site Delineation

Arsita- D:\home\a98rwj\requests\aug03\r1311\r1311_combined_methane&methane_buffer_zones

Project Site

METHANE AND METHANE BUFFER ZONES

CITY OF LOS ANGELES

BASIC GRID MAP
CITY OF LOS ANGELES
BUREAU OF ENGINEERING
Ordinance 175,790

JAMES K. HAHN
MAYOR

Methane Zone
Methane Buffer Zone
Council District Boundary

Prepared by GIS Mapping, Bureau of Engineering, Dept. of Public Works - 05/31/04

N

LA DPW ENGINEERING
Service, the Pursuit; Designing, the Future

GARY LEE MOORE, P.E.
CITY ENGINEER

Inglewood Field
Surface Geology Compilation
from USGS/CGS

Qsp
QTi
Qsp
Qpv
Qaf
Qyf
Qsp
Qpv
Qsp
QTi
Qyf
Qsp
Qpv
Qsp
Qsp
Qoa
Qoa
Qsp
Project Site
Qsp
Qoa

Preliminary Geologic Map of Los Angeles
30X90 Quad USGS OF Report 2005-1019 V1

Geologic Map of Long Beach 30X60 Quad
Cal Geolgical Survey 2003 V1

Qyf	Young alluvial-fan deposits
Qpv	Palos Verdes Sand
Qoa	Older Alluvium
Qsp	San Pedro Formation
QTi	Inglewood Formation

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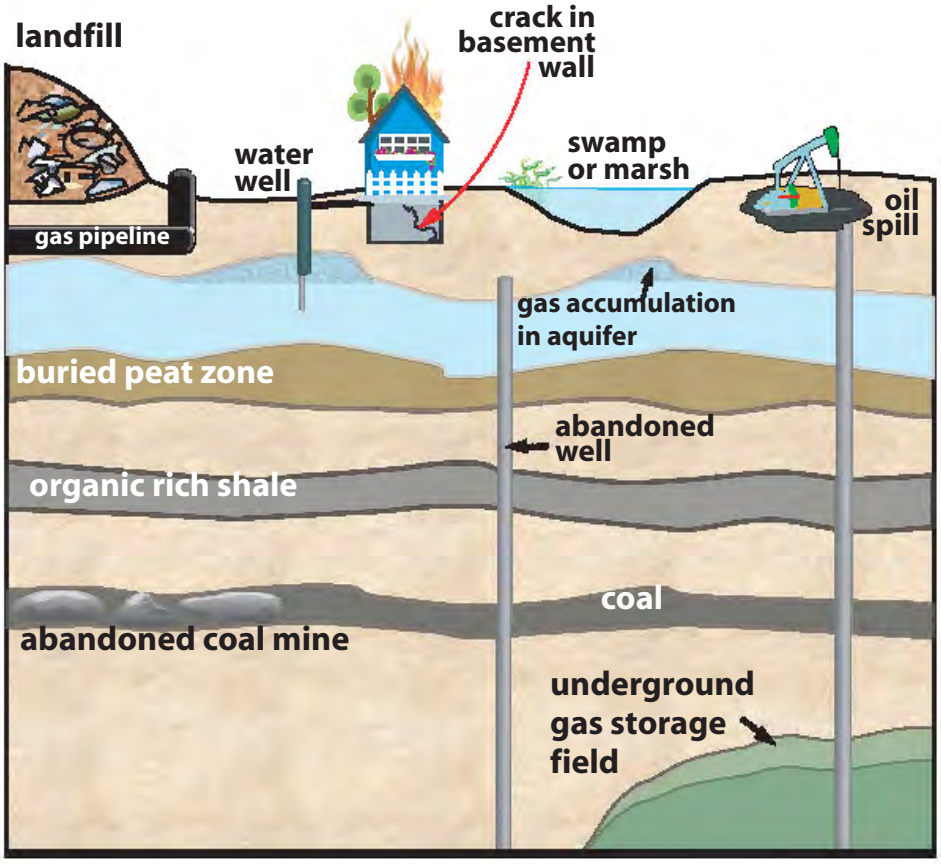
Stray Gas Identification

^{13}C δD ^{14}C ^{3}H

What is "Stray Gas"?

Plants which occur where you do not want them are called "weeds". Gases that occur where you do not expect or want them are considered "stray gases". The most common stray gases are methane (CH_4) and carbon dioxide (CO_2). Stray gases may be naturally occurring, or they may be manmade. How one deals with them depends upon the source.



Problems associated with stray gas

-Contaminated groundwater
-Asphyxiation
-Fires
-Explosions

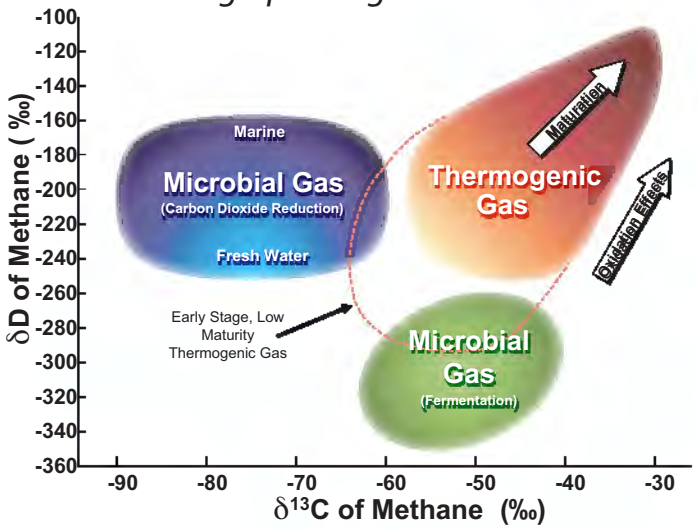
Potential sources of stray gas

-Leakage from natural gas pipelines
-Leakage from underground gas storage reservoirs
-Sanitary Landfills
-Swamps and marshes
-Glacial drift gas
-Mines and mine spoil
-Decomposition of oil and gasoline spills
-Leakage of active or abandoned oil and gas wells
-Buried coals and shales

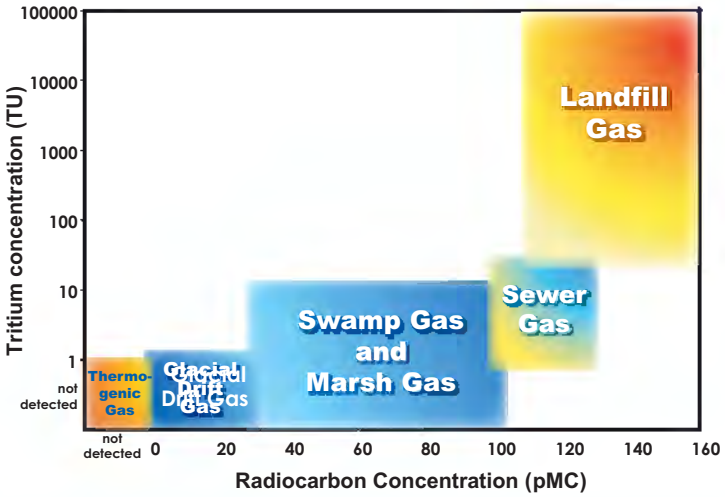
How can isotopic analysis identify stray gas?

•The stable isotopes of methane ($\delta^{13}C$ and δD) can provide information on the mechanism of formation. For instance, stable isotope analysis can help to determine whether a gas is biogenic or thermogenic.
•Radiocarbon, or ^{14}C, is produced in the upper atmosphere by cosmic rays and occurs in all organic materials that existed as living plants or animals within the last 40,000 to 50,000 years, allowing the identification of methane formed from glacial deposits
•A large spike of ^{14}C was injected into the atmosphere in the 50's and 60's by nuclear bomb testing and provides a "tag" for organic materials less than about 50 years old. This elevated ^{14}C concentration provides an excellent way of identifying landfill gas.
•Although tritium (^{3}H) was also produced by bomb testing, the primary source of tritium in landfills is disposal of certain items with luminous paints. Tritium is site specific as it depends on the nature of the refuse.

Fingerprinting of Gases



Differentiation of Microbial Gases



How can Isotech help with your stray gas problem?

Isotech scientists pioneered the use of isotopic analysis for stray gas identification and developed the techniques that have now become the industry standard. We can advise you on how to collect samples and can provide sample containers that will ensure that the samples collected are reliable and meet all analytical requirements. Isotech has state-of-the-art facilities for carrying out all of the isotopic analyses outlined above, and we offer many other services in addition to the stray gas analyses. If you have need of other isotopic analyses, please contact us for a complete list of available services. Our staff collectively has over 200 years of hands-on experience in isotopic analyses.

Turnaround Time for Analysis

BG-1 analysis package

Includes a complete compositional analysis as well as $\delta^{13}C$ and δD of CH_4, and $\delta^{13}C$ of CO_2

Standard	20 business days
Priority	10 business days
RUSH*	6 business days

BG-2 analysis package

Includes everything in BG-1 and adds ^{14}C of CH_4

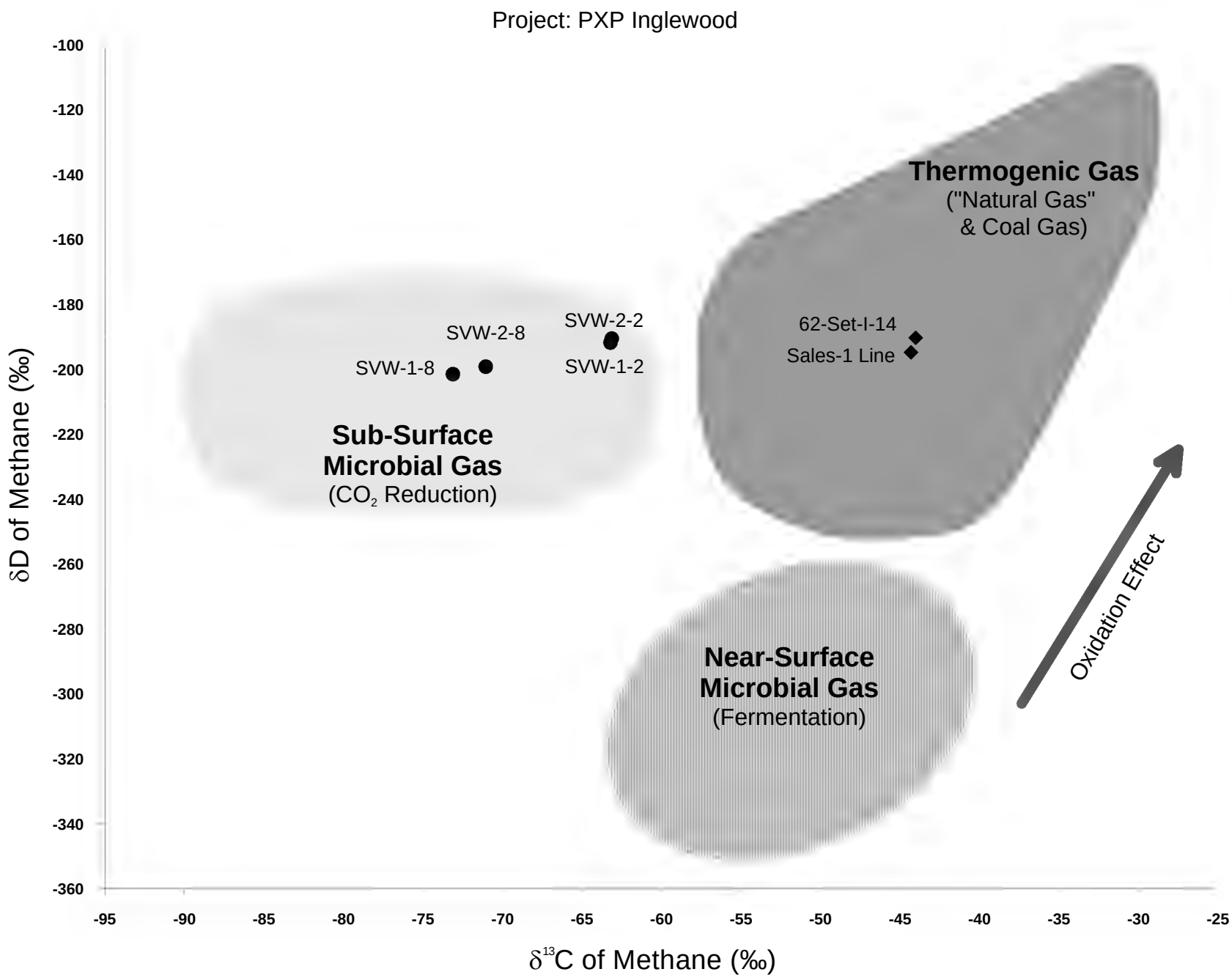
Standard	35 business days
Priority	20 business days
RUSH*	Please call for availability

BG-3 analysis package

*Includes everything in BG-2 and adds ^{3}H of CH_4***

Standard	30 business days
Priority	15 business days
RUSH*	Please call for availability

*Advance arrangements required for RUSH SERVICE
**Requires large samples


Project: PXP Inglewood
δD of Methane (‰)
-100
-120
-140
-160
-180
-200
-220
-240
-260
-280
-300
-320
-340
-360
-95
-90
-85
-80
-75
-70
-65
-60
-55
-50
-45
-40
-35
-30
-25
δ13C of Methane (‰)
Thermogenic Gas
("Natural Gas"
& Coal Gas)
62-Set-I-14
Sales-1 Line
SVW-2-8
SVW-2-2
SVW-1-8
SVW-1-2
Sub-Surface
Microbial Gas
(CO2 Reduction)
Near-Surface
Microbial Gas
(Fermentation)
Oxidation Effect

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Testing Laboratories
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(714) 449-9937 • FAX (714) 4499685

JONES ENVIRONMENTAL

LABORATORY REPORT

Client:	Cardno Entrix, Inc.	**Report Date:**	12/9/2011
Client Address:	2300 Clayton Rd., Suite 200 Concord, CA 94520	**JEL Ref. No.:**	D-0398
Attn:	Adam O'Connor	**Date Sampled:**	12/9/2011
		Date Received:	12/9/2011
		Date Analyzed:	12/9/2011
Project Address:	S. Fairfax & Stocker Street, Los Angeles, CA	**Physical State:**	Soil Gas

---

ANALYSES REQUESTED

1. EPA 8015M - Methane

Approval:

Steve Jones, Ph.D.
Laboratory Manager

Jones Environmental, Inc.
Testing Laboratories
P.O. Box 5387 • Fullerton, CA 92838
(714) 449-9937 • FAX (714) 4499685

JONES ENVIRONMENTAL

LABORATORY RESULTS

Client:	Cardno Entrix, Inc.	**Report Date:**	12/9/2011
Client Address:	2300 Clayton Rd., Suite 200 Concord, CA 94520	**JEL Ref. No.:**	D-0398
Attn:	Adam O'Connor	**Date Sampled:**	12/9/2011
		Date Received:	12/9/2011
		Date Analyzed:	12/9/2011
Project Address:	S. Fairfax & Stocker Street, Los Angeles, CA	**Physical State:**	Soil Gas

EPA 8015M - Methane

Sample ID	SVP-1-4	SVP-5-4	SVP-6-4	SVP-7-4	SVP-8-4	Dilution factor	Practical Quantitation Limits	Reporting Limits	UNITS
Methane	**52900**	**244000**	**1130**	**24400**	ND	1	10	10	ppmV

Sample ID	SVP-9-4	SVP-10-4	SVP-11-4	Dilution factor	Practical Quantitation Limits	Reporting Limits	UNITS
Methane	ND	**1410**	**327000**	1	10	10	ppmV

ND = Not Detected

QUALITY CONTROL INFORMATION

EPA 8015M - Methane

Parameter	LCS Recovery (%)	LCSD Recovery (%)	RPD	Acceptability Range (%)
Methane	101%	101%	0.0%	70-130

Method Blank = Not Detected
LCS = Lab Control Sample
LCSD = Lab Control Sample Duplicate
RPD = Relative Percent Difference

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Chain-of-Custody Record

Client: Cardno Entrix, Inc
Date: 12/09/2011
Project Name:
Client Project #:
Project Address: S Fairfax & Stockton St
Project Contact: Adam O'Connor

Turn Around Requested:
- ☐ Immediate Attention
- ☐ Rush 24-48 Hours
- ☐ Rush 72-96 Hours
- ☐ Normal
- ☒ Mobile Lab

SOIL GAS
Purge Number: ☒ 1P ☐ 3P ☐ 7P ☐ 10P
Tracer: N/A
Purge Rate: ~200 cc/min
Shut in Test Y / N

JEL Project #: D-0398
Page 1 of

Lab Use Only
Sample Condition as Received:
Chilled ☐ yes ☒ no
Sealed ☒ yes ☐ no

Sample ID	Purge Number	Purge Volume (mL)	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG)	Analysis Requested: 8015 (CH4)				Magnehelic Vacuum Pressure (in H2O)	Number of Containers	Remarks/Special Instructions
SVP-1-4	1	187	12/9/11	09:50		D-0398-1	SG	X				45	1	Tedlar Bag
SVP-5-4	1	187	12/9/11	10:40		D-0398-2	SG	X				45	1	" "
SVP-6-4	1	187	12/9/11	11:52		D-0398-3	SG	X				45	1	" "
SVP-7-4	1	187	12/9/11	11:57		D-0398-4	SG	X				45	1	" "
SVP-8-4	1	187	12/9/11	13:30		D-0398-5	SG	X				45	1	" "
SVP-9-4	1	187	12/9/11	13:35		D-0398-6	SG	X				40	1	" "
SVP-10-4	1	187	12/9/11	14:05		D-0398-7	SG	X				45	1	" "
SVP-11-4	1	187	12/9/11	15:05		D-0398-8	SG	X				45	1	" "

❶ Relinquished by (signature): Adam O'Connor	Date: 12/9/11	❷ Received by (signature): Eppe Jr	Date: 12/9/11	Total Number of Containers
Company: CARDNO ENTRIX	Time: 1530	Company: JEL	Time: 15:30	
❸ Relinquished by (signature)	Date	❹ Received by Laboratory (signature)	Date	
Company	Time	Company	Time	

The delivery of samples and the signature on this Chain of Custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.