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July 21, 2014

Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RECEIVED
By Alameda County Environmental Health at 3:30 pm, Jul 22, 2014

Re: **76 Service Station No. 1156 (351645)**
4276 MacArthur Boulevard, Oakland, California

ACEH Case No. RO0000409
RWQCB Case No. 01-2474
GeoTracker Global ID T0600102279

I have reviewed the attached Report on Sub-Slab Vapor, Indoor Air, and Outdoor Air Sampling and Vapor Intrusion Evaluation dated July 21, 2014.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by AECOM, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13257(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Sincerely,

Nicole Arceneaux
Project Manager

Attachment: *Report on Sub-Slab Vapor, Indoor Air, and Outdoor Air Sampling and Vapor Intrusion Evaluation*

Prepared for:
EMC
San Ramon, California

Prepared by:
AECOM
Camarillo, California
July 2014

Report on Sub-Slab Vapor, Indoor Air, and Outdoor Air Sampling and Vapor Intrusion Evaluation for the Oakland Veterinary Hospital Located at 4258 MacArthur Boulevard, Oakland, California

ACEH Case No. RO0000409
RWQCB Case No. 01-2474

76 Service Station No. 1156 (351645)
4276 MacArthur Boulevard
Oakland, California

AECOM

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4276 MacArthur Boulevard
Oakland, California

This report was prepared consistent with currently and generally accepted environmental consulting principles and practices. The material and data in this report were prepared by and/or under the supervision and direction of the undersigned.

Prepared By: James Harms
Project Scientist

PROFESSIONAL GEOLOGIST
SARA ARAV PIPER
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7/21/14

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1.0 Introduction

On behalf of Chevron Environmental Management Company (EMC), AECOM is pleased to submit this report on the vapor intrusion investigation performed for the Oakland Veterinary Hospital (OVH), located at 4258 MacArthur Boulevard in Oakland, California. The OVH is located adjacent to the northwest of 76 Service Station No. 1156 (351645), located at 4276 MacArthur Boulevard (**Figure 1**).

1.1 Background and Objectives

In previous investigations, elevated concentrations of petroleum hydrocarbons were detected in soil vapor along the northwestern portion of the 76 service station site, indicating the potential for vapor intrusion risk at the OVH property (Delta 2009; AECOM 2013a; 2013b). Based on the findings and conclusions resulting from those investigations, AECOM recommended additional investigation to determine whether there is a complete vapor intrusion pathway at the OVH building. AECOM recommended that paired sub-slab vapor and indoor air sampling be conducted in the OVH building, along with an outdoor (upwind) air sample from the site. Alameda County Environmental Health (ACEH) approved the work plan with minor edits on January 27, 2014 (**Appendix A**).

The investigation consisted of installing and sampling one sub-slab vapor probe (SS-1), collecting two indoor air samples (IA-1 and IA-2), and collecting one ambient outdoor air sample (OA-1). The sample locations are shown on **Figure 2**.

The scope of work was developed using EMC protocols and regulatory guidance documents, including the California Environmental Protection Agency (CalEPA) Department of Toxic Substances Control's (DTSC's) *Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (CalEPA 2011a), the DTSC and Regional Water Quality Control Board (RWQCB), Los Angeles Region's *Advisory – Active Soil Gas Investigation* (CalEPA 2012), and the American Petroleum Institute's *Collecting and Interpreting Soil Gas Samples from the Vadose Zone: A Practical Strategy for Assessing the Subsurface Vapor-to-Indoor Air Migration Pathway at Petroleum Hydrocarbon Sites* (American Petroleum Institute 2005).

1.2 Site Location and Description

The site is located at the northern corner of the intersection of MacArthur Boulevard and High Street in an urbanized area of Oakland, California, at the base of the San Leandro Hills. The OVH abuts the site to the northwest.

The site area consists of mixed commercial and residential development. A drug store is located beyond the OVH to the northwest. Single-family dwellings border the site to the northeast. An apartment building and commercial businesses (cleaners, tax service, and two restaurants) are present across High Street to the southeast. A vacant lot is located south of the site at the southern corner of the intersection of MacArthur Boulevard and High Street (former service station/brake shop/Robert's Tires, 4301-4311 MacArthur Avenue, open ACEH Leaking Underground Storage Tank [LUST] Case No. RO0002877). A vacant lot is also located across MacArthur Boulevard to the southwest of the site (former Shell Station #13-5701, 4255 MacArthur Boulevard; open ACEH LUST Case No. RO0000486).

Based on site survey data, well box surface elevations at the site range from 179.42 feet above mean sea level (amsl) at MW-4B to 173.12 feet amsl at MW-9B (Morrow Surveying 2013). Observations during the area reconnaissance on March 15, 2012, further revealed that the elevation at the northeastern site boundary is noticeably higher than at MW-4B. Additionally, the elevation at MW-5 (off-site) is 169.67 feet amsl. MW-5 is located in the street in front of the OVH property (adjacent to the northwest of the site) (**Figure 2**). To summarize, an approximately 7-percent (%) downward surface slope exists from the eastern corner to the western corner of the site.

Based on the lithology observed during previous investigations, the subsurface is predominantly fine-grained material made up of clays and silty sands with varying percentages of sands and gravels.

2.0 Soil Vapor Sampling

2.1 Pre-Field Activities

Prior to installing and sampling the sub-slab vapor probe, AECOM performed an inspection of the veterinary facility to determine the approximate locations of sewers, floor drains, joints in the floor slab, and utility lines beneath the concrete slab, and to screen the facility for any indoor sources of volatile organic compounds (VOCs).

Common household products can contain VOCs and could cause false positives to be detected in the indoor air sample. AECOM requested that, to the extent possible, smoking, cleaning, painting, solvent use, cosmetic application, or hydrocarbon storage be eliminated inside the building for at least 24 hours preceding the sampling event. AECOM inventoried and reviewed potential indoor air sources of VOCs with the building occupant. A copy of the inventory is included as **Appendix B** (AECOM 2012).

2.2 Sub-Slab Vapor Probe Installation

One sub-slab soil vapor monitoring probe was installed at the OVH property on May 3, 2014. A shallow 1-inch-deep, 7/8-inch-diameter outer hole was drilled into a concrete slab, which was approximately 10 inches thick. A smaller, 5/16-inch-diameter inner hole was then drilled through the concrete slab and 3 inches into the sub-slab soil to prevent obstruction of the probe by gravelly material. **Figure 3** provides an illustration of the sub-slab vapor probe construction detail. The probe was constructed of a 1/4-inch-outside-diameter and 1/8-inch-inside-diameter new stainless-steel tube set in the hole flush with the surface, and with a stainless-steel Swagelok® fitting. Quick-drying, expanding Portland cement grout was used to seal the tubing into the drill hole and annular space.

2.3 Sub-slab Vapor Probe Sampling Procedures

The following subsections provide general information regarding the procedures followed during collection of the soil vapor probe samples. Sampling methods followed the procedures recommended by CalEPA (CalEPA 2011a; 2012).

2.3.1 Sampling Equipment

All gauges and flow control manifolds were supplied by Eurofins Air Toxics, Inc. of Folsom, California (Air Toxics). The gauges and manifolds were connected by chromatography-grade, stainless steel tubing and dedicated airtight, flexible, Teflon® tubing, supplied by the laboratory, that have a low capacity for adsorbing VOCs. Samples were collected in 1-liter Summa® canisters provided by Air Toxics. All the canisters used for the sampling were 100%-certified as clean to support use of the soil vapor sample results in human health risk assessment. Each canister was field-verified to have a vacuum of at least 25 inches of mercury (inHg) prior to sampling.

2.3.2 Leak Testing

Leakage of atmospheric air into the equipment during sampling can compromise sample integrity and dilute measured soil vapor hydrocarbon concentrations. Sampling equipment was thoroughly inspected to ensure tight fittings between all components. To minimize the potential for leakage, the soil vapor sampling rate was kept at less than (<) 200 milliliters per minute (mL/min) using a flow controller supplied by Air Toxics. Prior to sampling, the Summa® canister valve was opened to the

still-closed Swagelok® valve for 10 minutes and the initial vacuum pressure recorded. Purging and sampling were not commenced until the sample train passed the leak test by maintaining constant vacuum for 10 minutes.

Laboratory-grade helium was used as the tracer gas to test for air leakage into the sampling system for the purpose of sample integrity verification, in general accordance with the CalEPA guidance document (2012). A clear plastic chamber was placed over the soil vapor probe location and sealed to the ground surface with a rubber mat. Helium from a cylinder was discharged into the chamber, and a helium detector was used to the percentage of helium inside the chamber. The values measured ranged from approximately 26.0% to 27.8% helium during sampling. Laboratory analysis for helium was used to assess if leakage occurred during sampling. The laboratory report indicates that no helium was detected in the samples. Acceptable leakage is up to 10%; therefore, the sample results are considered valid (CalEPA 2012).

2.3.3 Purging

Prior to collecting a sub-slab vapor sample, the sampling tubes were purged using a battery-powered, flow-calibrated purge pump to ensure that the vapor samples collected would be representative of actual sub-slab vapor concentrations. Field notes containing dimensions and specifications of the above- and below-ground tubing lengths, and inner diameter were used to calculate the purge volume. The flow rate for purging was the same as the flow rate used for subsequent sampling (<200 mL/min). For the sub-slab vapor sampling event, three volumes were purged before sampling.

Calculated purge volumes and durations were recorded on the vapor sampling field sheets included as **Appendix C**.

2.3.4 Sub-slab Sample Collection

To draw the soil vapor to the surface, a vacuum was created using an evacuated Summa® canister, supplied by Air Toxics. A valve was used to isolate the purging canister from a separate tube that was connected to the vapor sample canister. **Figure 4** shows a typical equipment sample train for the soil vapor sampling activities.

Sample collection from the sub-slab vapor probe was started immediately after purging. Sample train integrity testing was performed by enclosing the sampling train in a helium-enriched atmosphere concurrent with sampling, as described above. To begin sampling, the valve on the Summa® canister was opened and the time and initial pressure were documented. As the canister filled, the pressure gauge on the flow controller was observed to ensure that the vacuum in the canister was decreasing over time. Each canister was allowed to fill for approximately 8 minutes, until the canister vacuum gauge indicated the vacuum had decreased to 3.5 inHg.

Once the samples were collected, the Summa® canisters were closed and sealed using brass caps supplied by Air Toxics. Samples were labeled following standard chain-of-custody (COC) protocols, including noting the final canister vacuums and the serial numbers of all canisters and flow controllers. AECOM documented the sampling activities, such as sampling times and conditions, in the field sheets included in **Appendix C**. Samples were delivered directly to the analytical laboratory under COC protocols within 24 hours of sampling.

2.4 Indoor Air and Outdoor Air Sampling Procedures

At the request of ACEH, two indoor air samples (IA-1 and IA-2) were collected. IA-1 was collected from the same vicinity as the sub-slab sample, while IA-2 was collected over the raised foundation

portion of the building. One outdoor air sample (OA-1) was collected for laboratory analysis from outside of the OVH building. The sample locations are shown on **Figure 2**. The indoor air samples were collected in the building at the same time as the sub-slab vapor collection to determine the concentration of VOCs. The outdoor air sample was collected to characterize the contribution from outdoor air to indoor air. The indoor air samples were collected over a 24-hour period (from June 7 to June 8), while the outdoor air sample was collected over an 8-hour period (June 8).

2.4.1 Indoor Air Samples

The time-integrated indoor air samples were collected using a 6-liter Summa® canister obtained from Air Toxics. All Summa® canisters were certified clean at the 100% quality control (QC) level, fitted with a vacuum gauge, and under a vacuum of greater than (>) 25 inHg. The canisters were fitted with a laboratory-calibrated flow controller (3.49 mL/min) to collect an air sample at a constant flow rate over an approximate 24-hour period. The canister vacuum was recorded prior to sampling, periodically during the filling period, and at the conclusion of the sampling interval. The canisters used to collect the indoor air samples were placed at 4.6 and 4.7 feet for IA-1 and IA-2, respectively, above the floor to provide a sample representative of the breathing zone.

2.4.2 Outdoor Air Sample

The time-integrated ambient outdoor air sample was collected using a 6-liter Summa® canister provided by Air Toxics. The Summa® canister was certified-clean at the 100% QC level, fitted with a vacuum gauge, and under a vacuum of >25 inHg. The canister was fitted with a laboratory-calibrated flow controller (11.5 mL/min) to collect an outdoor air sample at a constant flow rate over an approximately 8-hour period. The canister vacuum was recorded prior to sampling, periodically during the filling period, and at the conclusion of the sampling interval. The sample location is indicated on **Figure 2**. The exact sample location was determined during the pre-fieldwork site visit and using data from the National Weather Service. The outdoor air sample was collected on the upwind (southwest) side of the OVH building along the stairway entrance to the building, 11 feet from an exterior wall. The canister was placed at 6.0 feet above ground level. This height provides a sample representative of the breathing zone, as the ground surface is not level in this area.

2.5 Laboratory Analysis

Air Toxics analyzed a total of six samples including one equipment blank.

The sub-slab vapor and outdoor air samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg); benzene, toluene, ethyl benzene, total xylenes (BTEX); methyl tertiary butyl ether (MTBE); and naphthalene using United States Environmental Protection Agency (USEPA) Method (modified) TO-15 APH (air-phase petroleum hydrocarbon) Fractions (Sp)-Full list + Naph (naphthalene) + APH. The sub-slab vapor samples were also analyzed for atmospheric gas percentages (oxygen, methane, carbon dioxide, and nitrogen) and the tracer gas helium by modified ASTM Method D-1946, to assess sample train integrity during the sampling event.

The indoor air samples were analyzed for TPHg, BTEX, MTBE, and naphthalene using USEPA Method Modified TO-15 Hi/Lo – VOCs by GC/MS SIM/Full Scan Modified TO-15 Hi/Lo (SP)-BTEX, MTBE< Naph & TPHg (Naph @ SIM 0.05) to achieve the required reporting limits for indoor air.

2.6 Analytical Results

Method TO-15 sub-slab soil vapor analytical results are summarized in **Table 1**, with references to California Human Health Screening Levels (CHHSLs) and Environmental Screening Levels (ESLs) for commercial/industrial locations. Atmospheric gas results are presented in **Table 2**. The laboratory analytical reports, including COC documentation, are included in **Appendix D**.

3.0 Vapor Intrusion Pathway Evaluation and Risk Analysis

The OVH is located on the property adjacent to and downgradient of the service station site on the northwestern side. Therefore, this vapor intrusion evaluation is being performed to determine whether a complete vapor intrusion pathway exists for volatile petroleum hydrocarbons originating from soil vapor on the service station site.

There are existing single-family residences located to the east of the service station site. However, they are upgradient and uphill from the service station. Existing soil vapor data on the service station site indicate diminishing soil vapor concentrations in this direction. Therefore, investigation of these residences is not warranted.

3.1 Objective

AECOM previously performed an evaluation of the potential vapor intrusion pathway at the OVH building in accordance with CalEPA and DTSC guidance (CalEPA 2005; 2009; 2011a), and the approved work plan (AECOM 2012). As discussed in Section 1.0, measurable concentrations of petroleum hydrocarbons were detected in soil vapor samples collected in the vicinity of the OVH building (AECOM 2013a; 2013b). Therefore, additional sampling and vapor intrusion evaluation were performed to determine whether a complete vapor intrusion pathway exists for volatile petroleum hydrocarbons originating from soil vapor previously detected in the vicinity of the OVH building.

3.2 Sampling Results

On June 8, 2014, a sub-slab vapor sample and indoor air samples were collected contemporaneously from within the OVH building, and an ambient outdoor air sample was collected from outside of the building. The sub-slab vapor, indoor air, and outdoor air sampling results are presented in **Tables 1** and **2**. The laboratory analytical reports are attached as **Appendix D**. These data are discussed below.

3.2.1 VOC Results

TPHg, BTEX, MTBE, and naphthalene were not detected above laboratory reporting limits in the sub-slab vapor or outdoor air samples. Laboratory detection limits are discussed further in Section 3.2.2.

The vapor sampling results indicate that TPHg, BTEX, MTBE, and naphthalene were detected in indoor air samples. Indoor air analyses were conducted using a more sensitive test than outdoor and sub-slab analyses. Analytical methods were selected on the basis of CHHSLs for each sample type. Because indoor-air CHHSLs are lower than sub-slab soil vapor CHHSLs, a more sensitive method was selected (Selected Ion Monitoring [SIM] Modified TO-15). In all cases, the concentrations detected in indoor air were less than laboratory reporting limits (RLs) for the sub-slab vapor and ambient outdoor air samples.

3.2.2 Laboratory Reporting Limits

Laboratory RLs for TPHg, benzene, ethyl benzene, and naphthalene in sub-slab vapor samples and outdoor air samples collected during the June 2014 sampling event analyzed by USEPA Method TO-15 APH (Full scan) ranged from 2.8 to 230 micrograms per cubic meter ($\mu g/m^3$).

Laboratory RLs for TPHg, benzene, ethyl benzene, and naphthalene in indoor air samples collected during the June 2014 sampling event as a result of the analysis by the more sensitive USEPA Method Modified TO-15 APH (SIM) ranged from 0.15 to 70 µg/m^3.

3.2.3 Methane

Sub-slab vapor samples were analyzed for methane, as discussed in Section 2.3. Methane was not detected above laboratory RLs (i.e., approximately 0.0002%). These levels are several orders of magnitude below the lower explosive limit (i.e., 10%) for methane, which is used as an "action level" above which mitigation of methane is recommended (DTSC 2005). Therefore, the methane results in the sub-slab vapor are not of concern and do not require mitigation.

3.2.4 Leak Detection

Helium was added as necessary to the clear plastic chamber used as a shroud during the sub-slab vapor sampling procedures in order to maintain a relatively uniform (above 20%) concentration of gas for leak testing. The helium concentration in the shroud ranged from 26.0 to 27.8% during sampling. Helium was not detected in the sub-slab sample (and the duplicate) and the equipment blank, with an RL of 0.11%. [Note: the duplicate and equipment blank samples were quality control samples, discussed below.] A sample is considered valid and acceptable for risk evaluation if the concentrations of the tracer gas (helium) in the sample are 10% or less (New York State Department of Health 2006); thus, these results are considered not to be affected by leakage and are considered valid.

3.2.5 Quality Control Sample Results

Quality control samples for this event included a duplicate sample from SS-1 (SS-1-V-Y-20140608) and an equipment blank sample (EB-1-20140608). The primary and the duplicate sample agreed within 5% for all constituents tested. No constituents were detected in the equipment blank.

3.3 Vapor Intrusion Pathway Evaluation

Indoor air VOC concentrations were compared to sub-slab vapor and ambient outdoor air concentrations to determine whether there is evidence of a complete vapor intrusion pathway. The vapor intrusion pathway is considered complete if indoor air samples contain:

- significantly greater concentrations of petroleum hydrocarbon VOCs (e.g., BTEX) than ambient outdoor air and the normal range of typical indoor air (i.e., "background"); AND
- significantly lesser concentrations of petroleum hydrocarbon VOCs than sub-slab vapor (i.e., concentrations in indoor air similar to or greater than those in sub-slab vapor, suggesting a source other than vapor intrusion).

With respect to the first criterion, concentrations of TPHg, BTEX, MTBE, and naphthalene detected in the indoor air samples were less than the RLs for these constituents in outdoor air. Although it cannot be conclusively stated that indoor air concentrations were less than outdoor air (or sub-slab air), it can be stated that the detected indoor concentrations as well as the RLs for these constituents in sub-slab vapor and ambient outdoor air are similar to published "background" concentrations reported in indoor air (USEPA 2011).

With respect to the second criterion, an attenuation factor of 0.1 is generally used for a building with a slab-on-grade foundation in a commercial setting to estimate indoor air concentrations based on sub-slab vapor concentrations, i.e., indoor air concentrations are generally 10 times lower than

sub-slab vapor concentrations. (The use of an attenuation factor of 0.1 is two times more conservative than CalEPA's default attenuation factor of 0.05 for the same building/exposure scenario [CalEPA 2011b]). If TPHg and benzene in sub-slab air were present at their respective RLs, the concentrations of these constituents detected in indoor air would be within 3 to 6 times these values, suggesting that the constituents detected in indoor air may be arising from a source other than sub-slab vapor such as an indoor source(s) or ambient outdoor air. It should be reiterated, the concentrations detected in indoor air are similar to those reported for background indoor air concentrations which are attributed to a wide variety of sources other than vapor intrusion (USEPA 2011).

3.4 Risk Analysis

There are many sources for non-petroleum-related background VOCs inside buildings. Materials and substances commonly found in commercial and residential settings contain VOCs that may be detected by indoor air testing. Some examples of these substances include, but are not limited to, paints, paint thinners, dry-erase markers, building materials, cleaning products, dry-cleaned clothing, and cigarette smoke. In particular, the building in question is in an urbanized area adjacent to several commercial establishments. Therefore, indoor air samples may contain BTEX and other petroleum hydrocarbon compounds related to indoor air (i.e., background) sources and unrelated to a subsurface petroleum hydrocarbon source.

The concentrations of VOCs detected in indoor air at the OVH are consistent with concentrations found in residential background indoor air (USEPA 2011). These indoor air VOC concentrations were compared to several readily available health-based screening levels. These screening levels are designed to be protective of human health in conservative commercial/industrial exposure scenarios.

Table 1 includes a comparison of the indoor air results to CHHSLs (CalEPA 2005; 2009; 2011b), and the San Francisco Bay RWQCB (SF RWQCB) ESLs (SF RWQCB 2008). CHHSLs and ESLs are based on conservative modeling inputs, a target potential excess lifetime cancer risk of $1x10^{-6}$ and a target hazard quotient of 1. CalEPA indicates that concentrations below these screening levels do not pose a human health risk of concern (CalEPA 2005; SF RWQCB 2008). CalEPA also indicates that concentrations of petroleum hydrocarbons in excess of these screening levels do not necessarily indicate that adverse impacts to human health are occurring, or will occur, but suggest that further evaluation is warranted. Concentrations of toluene, ethyl benzene, xylenes, and MTBE detected in indoor air were below their respective CHHSLs and/or ESLs, and thus, do not pose a risk to human health.

Concentrations of TPHg, benzene, and naphthalene detected in indoor air were above their respective CHHSLs and/or ESLs. However, as discussed above, concentrations of petroleum hydrocarbons in excess of CHHSL or ESL screening levels do not necessarily indicate that adverse impacts to human health are occurring, or will occur, but may warrant reassessment of the assumptions used to calculate the screening levels.

USEPA provides regional screening levels (RSLs), which are similar to CHHSLs and are used across the nation to assess chemical exposure (USEPA 2014). USEPA RSLs for industrial/commercial air are 130, 1.6, and 0.36 $\mu g/m^3$ for TPHg, benzene and naphthalene, respectively. Detected concentrations and RLs for each analyte in indoor air are all below the USEPA RSLs.

One difference between CHHSLs and RSLs is that RSLs are based on an exposure duration of 8 hours per day in the commercial/industrial scenario rather than 24 hours per day. Applying an 8-hour per day adjustment to the industrial CHHSLs results in a value of 0.36 $\mu g/m^3$ for naphthalene.

The detected concentration of naphthalene does not exceed an 8-hour-modified CHHSL. Detected concentrations of TPHg and benzene would still exceed an 8-hour-modified CHHSL.

Proposition 65 defines the "no significant risk level" (NSRL) as a cancer risk of 10^{-5}, while CHHSLs are calculated based on a risk level of 10^{-6}. If the CHHSLs were modified to the NSRL, they would increase by a factor of 10. TPHg, benzene, and naphthalene in indoor air would all be below CHHSLs modified to this risk level and, therefore, the risk associated with VOC exposure in the indoor air is below the NSRL benchmark of a cancer risk of 10^{-5}.

3.5 Uncertainties

Multiple factors contribute to uncertainty in evaluating the vapor intrusion pathway. The following uncertainties should be considered qualitatively in addition to the risk analyses described in this report.

- The screening levels for vapor intrusion risk evaluation are based on the assumption that the indoor air concentrations remain constant for the assumed exposure duration (i.e., 25 years). Environmental degradation has not been accounted for in the calculation of risks for the site. It is likely that concentrations evaluated in this report will decrease over the exposure duration due to biodegradation of petroleum hydrocarbons (USEPA 1997).
- The current indoor air, sub-slab, and outdoor air data are the results from the first of two scheduled sampling events. Any single sampling event does not allow for estimation of the variability associated with a measurement. The risk analyses included in this report represent only the moment in time when the data were collected until additional data allow for the estimation of the variability of the parameters tested.
- Laboratory RLs for benzene and naphthalene in sub-slab vapor samples collected during the June 2014 sampling event were above their respective CHHSLs/ESLs. Benzene and naphthalene RLs were above CHHSLs/ESLs but below CHHSLs modified for exposure duration and a target risk of 10^{-5} in indoor air, suggesting that the constituents do not pose a health concern via the inhalation pathway.
- Laboratory RLs for BTEX, MTBE, and naphthalene in sub-slab vapor and outdoor air are similar to concentrations reported by USEPA (2011) for background indoor air concentrations of these constituents.

4.0 Conclusions and Recommendations

In previous investigations, soil vapor samples at the service station site indicated the potential for vapor intrusion risk at the OVH property. Based on those results, EMC recommended and prepared a work plan for indoor air, outdoor air and sub-slab sampling at the OVH property. The work plan was submitted to ACEH on October 15, 2013, and approved by ACEH on January 27, 2014.

The results of sub-slab vapor, indoor air, and outdoor air sampling conducted on the OVH property in June 2014 were evaluated to determine if a potentially complete vapor intrusion pathway exists at the OVH and to screen for inhalation exposure risk to the OVH building occupants associated with a vapor intrusion pathway.

TPHg, BTEX, and naphthalene were not detected in sub-slab vapor or outdoor air. With the exceptions of benzene and naphthalene, RLs in these samples were below commercial/industrial CHHSLs. Vapor intrusion evaluations generally consider the building slab to attenuate vapor concentrations at least 10-fold. The concentrations of constituents detected in indoor air are 5- to 6-fold lower than the RLs for the sub-slab vapor samples. This comparison indicates that hydrocarbon concentrations in sub-slab vapor, if any, are less than 10 times greater than in indoor air. Consequently, the vapor intrusion pathway is not considered to be complete at the OVH building.

Concentrations of TPHg, benzene, and naphthalene above CHHSLs were detected in both indoor air samples collected in this investigation. These concentrations were all below USEPA RSLs for industrial/commercial sites and the benzene and naphthalene concentrations are consistent with reported residential background concentrations (USEPA 2011).

A comparison of the naphthalene concentrations detected in the indoor air samples to CHHSLs modified to account for an exposure duration of 8 hours per day indicated that naphthalene did not represent a threat at the site (i.e., 10^{-6} risk). If an NSRL of 10^{-5} was applied, detected concentrations of TPHg, benzene, and naphthalene in indoor air are all less than CHHSLs modified to that risk level. These results suggest that the indoor air concentrations in the OVH building are unlikely to pose an unacceptable risk to human health.

AECOM will conduct the late-summer sub-slab soil vapor sampling required by ACEH's letter dated January 27, 2014, and expects that investigation to provide insight into the variability associated with the parameters measured in the current study. AECOM recommends the use of more sensitive analytical methods to analyze sub-slab soil vapor and outdoor air. Based on the results of the additional sampling event, ongoing monitoring or additional investigation may be required, but the current results do not indicate a complete vapor intrusion pathway and detected indoor air hydrocarbon concentrations are consistent with residential background.

5.0 References

Alameda County Environmental Health Services. 2014. Conditional Work Plan Approval. January 27.

AECOM. 2012. *REVISED Work Plan for Vapor Intrusion Investigation and Risk Assessment.* August 27.

——. 2013a. *Report on Vapor Intrusion Investigation.* April.

——. 2013b. *Report on Vapor Intrusion Investigation and Risk Assessment for the Oakland Veterinary Hospital Located at 4258 MacArthur Boulevard, Oakland.* October 15.

American Petroleum Institute. 2005. Collecting and Interpreting Soil Gas Samples from the Vadose Zone: A Practical Strategy for Assessing the Subsurface-Vapor-to-Indoor-Air Mitigation Pathway at Petroleum Hydrocarbon Sites. Final Draft. November.

California Environmental Protection Agency. 2005. Use of California Human Health Screening levels (CHHSLs) in Evaluation of Contaminated Properties. California Environmental Protection Agency. Office of Environmental Health Hazard Assessment. January.

——. 2009. California Human Health Screening Levels for Ethylbenzene. Draft Report. November.

——. 2011a. Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). Department of Toxic Substances Control. October.

——. 2011b. Department of Toxic Substances Control, Office of Human and Ecological Risk (HERO), Human Health Risk Assessment Note 4, Issue: Screening Level Human Health Risk Assessments. June 9.

——. 2012. Advisory – Active Soil Gas Investigations. Jointly issued by the Regional Water Quality Control Board, Los Angeles Region, San Francisco Region, and the Department of Toxic Substances Control. April.

Delta. 2009. *Site Investigation Report, 76 Service Station No. 1156, 4276 MacArthur Boulevard, Oakland, California,* dated September 8, 2009. Prepared for ConocoPhillips Company, 76 Broadway, Sacramento, California. Prepared by Delta Consultants, 11050 White Rock Road, Suite 110, Rancho Cordova, California, 95670.

Department of Toxic Substances Control. 2005. Advisory on Methane Assessment and Common Remedies at School Sites. June 16.

Morrow Surveying. 2013. Monitoring Well Exhibit, 76 Service Station #1156, 4276 MacArthur Blvd., Oakland, Alameda County, California. Dated April 2013. Prepared by Morrow Surveying, 1255 Starboard Drive, West Sacramento, California 95691. Field Book: 1152. Dwg. 1856-046-MAM.

New York State Department of Health. 2006. Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October.

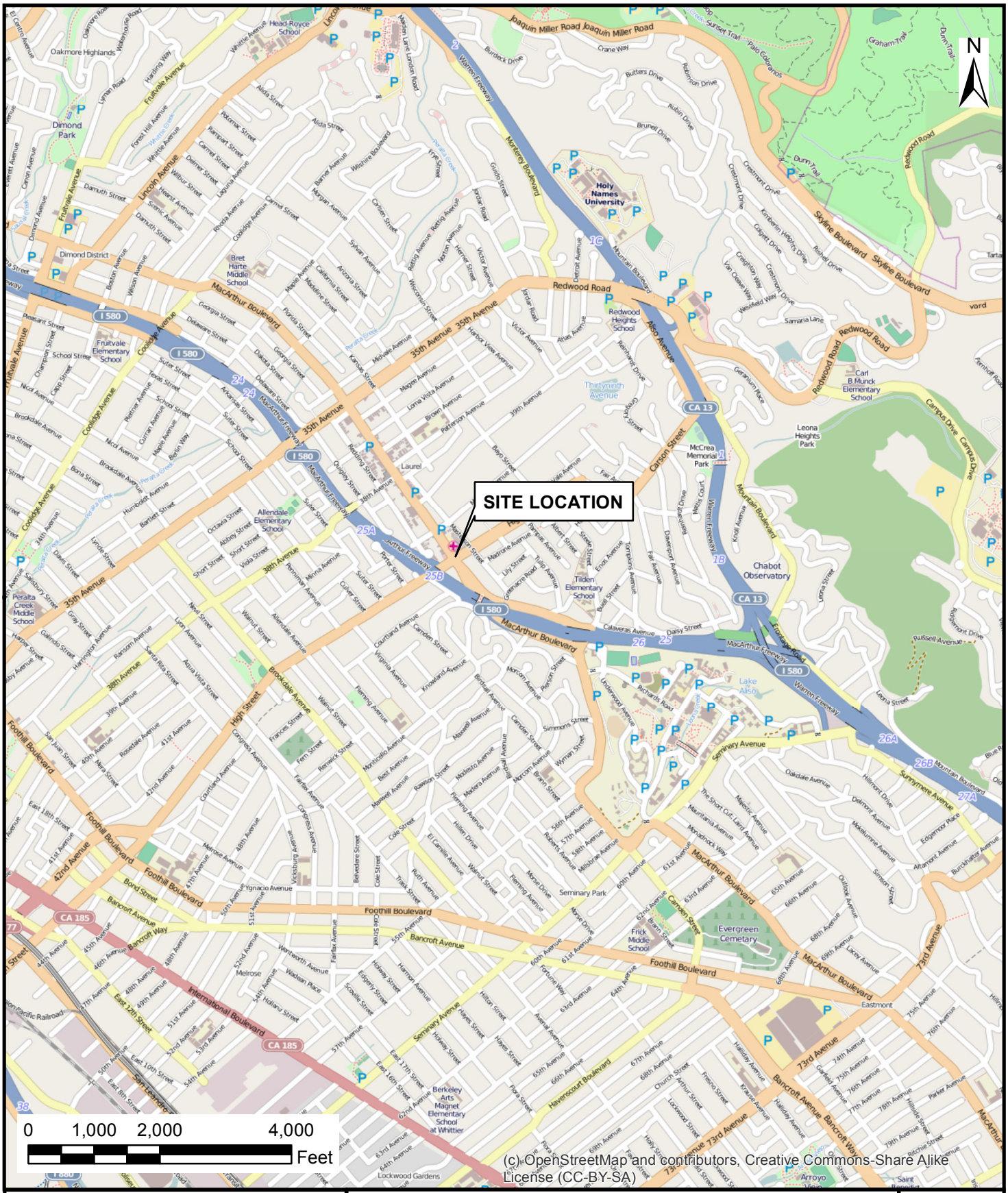
San Francisco Bay Regional Water Quality Control Board. 2008. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. California Regional Water Quality Control Board, San Francisco Bay Region. Revised May.

United States Environmental Protection Agency. 1997. *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites*. USEPA OSWER Directive 9200.4-17. Interim Final. December 1.

——. 2011. Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences (1990-2005): A Compilation of Statistics for Assessing Vapor Intrusion. Office of Solid Waste and Emergency Response. EPA 530-R-10-001. June.

——. 2014. Regional Screening Levels for Chemical Contaminants at Superfund Sites. http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table.

Figures



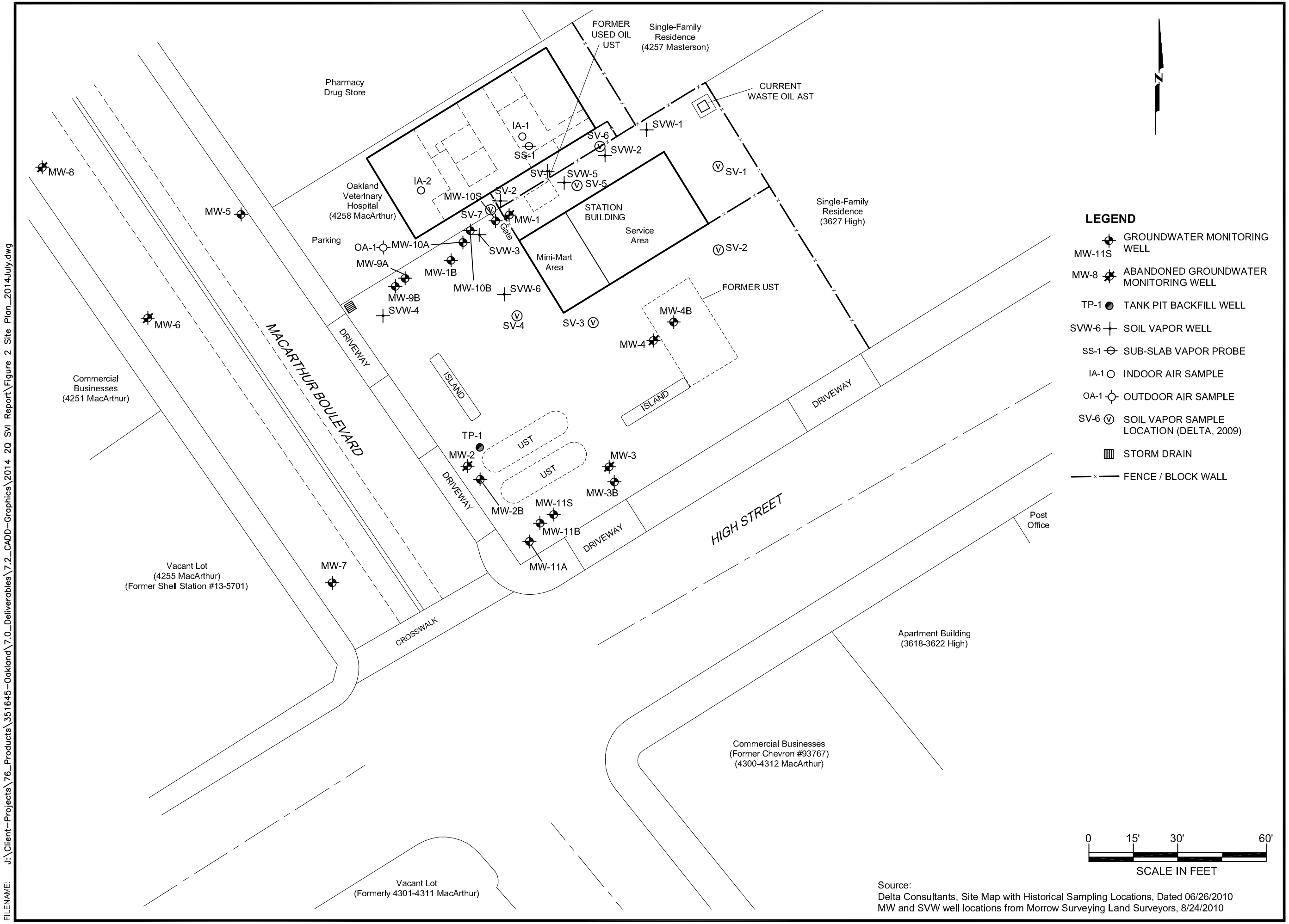
AECOM
1220 AVENIDA ACASO
CAMARILLO, CALIFORNIA 93012
PHONE: 805.388.3775
FAX: 805.388.3577
WEB: HTTP://WWW.AECOM.COM

SITE LOCATION MAP

76 Service Station No. 1156 (351645)
4276 MacArthur Boulevard
Oakland, California

FIGURE NUMBER:
1

DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
M. Scop	02/10/2014	60313673	1 of 1



Source:
Delta Consultants, Site Map with Historical Sampling Locations, Dated 06/26/2010
MW and SVW well locations from Morrow Surveying Land Surveyors, 8/24/2010

REVISIONS			
NO:	DESCRIPTION:	DATE:	BY:

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED BY:
C. Roper	M. Scop	C. Roper	B. Evans

AECOM
1220 AVENIDA ACASO
CAMARILLO, CALIFORNIA 93012
PHONE: (805) 388-3775
FAX: (805) 388-3577

SITE PLAN WITH WELL LOCATIONS AND SVI LOCATIONS

76 Service Station No. 1156 (351645)
4276 MacArthur Boulevard
Oakland, California

SCALE:	DATE:	PROJECT NUMBER:
1" = 30'	7/21/2014	60316610 - 04.05

FIGURE NUMBER:

2

SHEET NUMBER:

X

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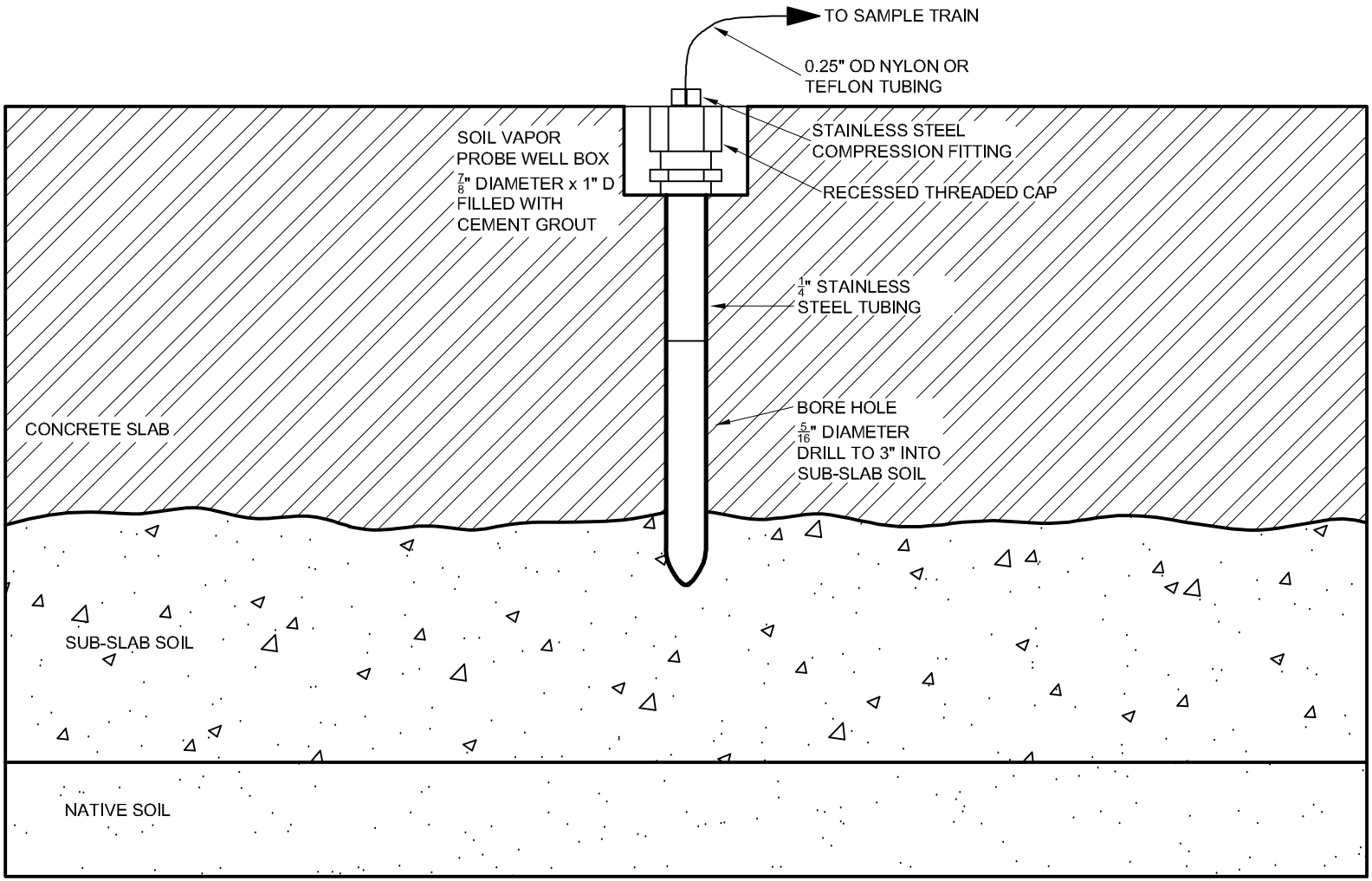


SUB-SLAB VAPOR PROBE DETAIL

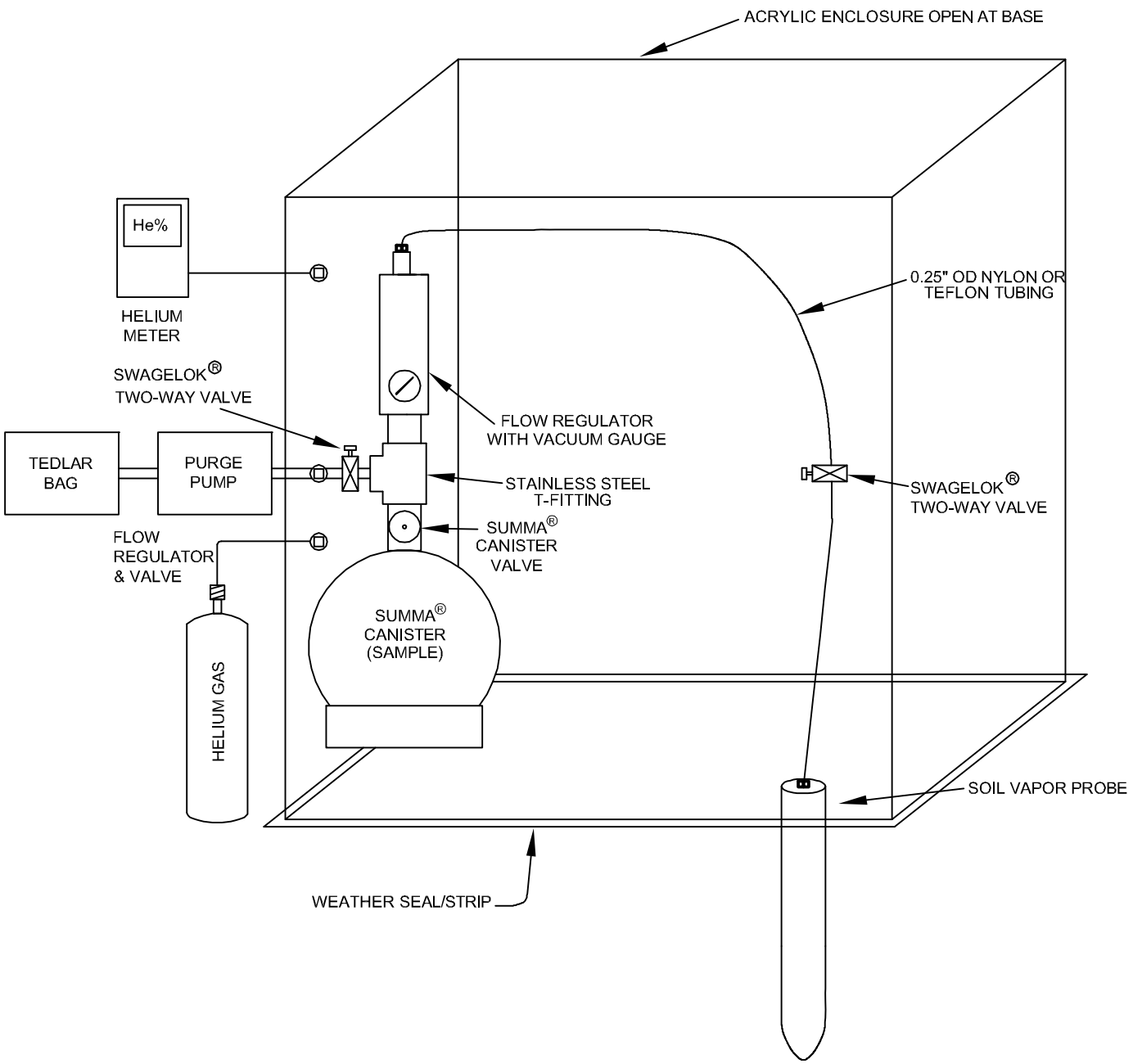
76 Service Station No. 1156 (351645)
1823 North Main Street
Walnut Creek, California

FIGURE NUMBER: 3

AECOM
1220 AVENIDA ACASO
CAMARILLO, CALIFORNIA 93012
PHONE: (805) 388-3775
FAX: (805) 388-3577

DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
M. Scop	7/21/2014	60316610 - 04.05	X

FILENAME: J:\Client-Projects\76_Products\351645-Oakland\7.0_Deliverables\7.2_CADD-Graphics\2014 2Q SVI Report\VAPOR_PROBE_DETAIL.dwg



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AECOM
1220 AVENIDA ACASO
CAMARILLO, CALIFORNIA 93012
PHONE: (805) 388-3775
FAX: (805) 388-3577

SUB-SLAB VAPOR SAMPLING APPARATUS

76 Service Station No. 1156 (351645)
4276 MacArthur Boulevard
Oakland, California

FIGURE NUMBER:
4

DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
M. Scop	7/21/2014	60316610 - 04.05	1

Tables

Table 1
Analytical Results and Comparison to CHHSLs and ESLs
76 Service Station No. 1156 (351645)
4276 MacArthur Boulevard, Oakland California

SAMPLE ID	DATE	TPHg		Benzene		Toluene		Ethyl benzene		o-Xylene		m,p-Xylenes		MTBE		Naphthalene	
		(µg/m³)	(ppbv)	(µg/m³)	(ppbv)	(µg/m³)	(ppbv)	(µg/m³)	(ppbv)	(µg/m³)	(ppbv)	(µg/m³)	(ppbv)	(µg/m³)	(ppbv)	(µg/m³)	(ppbv)
Sub-Slab Vapor CHHSLs (b)																	
commercial/industrial		*NA*		*2.82*		*8,760*		*32*		*20,400*		*20,400*		*314*		*2.4*	
residential		*NA*		*1.68*		*6,260*		*19*		*14,600*		*14,600*		*187*		*1.44*	
Sub-Slab Vapor ESLs (d)																	
commercial/industrial		*280*		*2.8*		*1,760*		*32*		*580*		*580*		*320*		*2.4*	
residential		*200*		*1.68*		*1,260*		*20*		*420*		*420*		*188*		*1.44*	
Sub-slab Vapor Samples																	
SS-1-V-N-20140608	6/8/2014	<220	<54	<3.4	<1.1	<4.0	<1.1	<4.6	<1.1	<4.6	<1.1	<4.6	<1.1	<3.8	<1.1	<22	<4.3
SS-1-V-Y-20140608 (DUP)	6/8/2014	<230	<56	<3.5	<1.1	<4.2	<1.1	<4.8	<1.1	<4.8	<1.1	<4.8	<1.1	<4.0	<1.1	<23	<4.4
Indoor Air CHHSLs (a)																	
commercial/industrial		*NA*		*0.141*		*438*		*1.6*		*1,020*		*1,020*		*15.7*		*0.12*	
residential		*NA*		*0.084*		*313*		*0.97*		*730*		*730*		*9.35*		*0.072*	
Indoor Air ESLs (c)																	
commercial/industrial		*14*		*0.14*		*88*		*1.6*		*29*		*29*		*16*		*0.12*	
residential		*10*		*0.084*		*63*		*0.98*		*21*		*21*		*9.4*		*0.072*	
Indoor Air Samples																	
IA-1-V-N-20140608	6/8/2014	**86**	**21**	**0.58**	**0.18**	**1.9**	**0.51**	**0.30**	**0.070**	**0.39**	**0.090**	**1.0**	**0.23**	<0.62	<0.17	**0.32 J**	**0.061 J**
IA-2-V-N-20140608	6/8/2014	**94**	**23**	**0.56**	**0.17**	**1.6**	**0.44**	**0.29**	**0.066**	**0.35**	**0.081**	**0.95**	**0.22**	**0.013 J**	**0.0036 J**	**0.19 J**	**0.036 J**
Outdoor Air Sample																	
OA-1-V-N-20140608	6/8/2014	<180	<44	<2.8	<0.87	<3.3	<0.87	<3.8	<0.87	<3.8	<0.87	<3.8	<0.87	<3.1	<0.87	<18	<3.5
Equipment Blank																	
EB-1-20140608	6/8/2014	<220	<53	<3.4	<1.1	<4.0	<1.1	<4.6	<1.1	<4.6	<1.1	<4.6	<1.1	<3.8	<1.1	<22	<4.3

Notes:
All analytes were analyzed by modified EPA method TO-15 APH (Air Phase Petroleum Hydrocarbons).
CHHSL and ESL values are shaded gray.
Green shading indicates a detection above the laboratory reporting limit in exceedence of the residential and/or commercial/industrial CHHSL and/or ESL.

CalEPA = California Environmental Protection Agency.
CalEPA 2005 = Use of California Human Health Screening Levels in Evaluation of Contaminated Properties. January 2005. Table 2.
CalEPA 2009 = California Human Health Screening Levels for Ethylbenzene. Draft Report. November 2009.
CalEPA 2011 = CalEPA Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October 2011.
SF RWQCB 2008 = San Francisco Bay Regional Water Quality Control Board. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. May 2008. Table E.
CHHSL = California Human Health Screening Level.
OEHHA = Office of Environmental Health Hazard Assessment.
(a) = CalEPA 2005 and CalEPA 2009.
(b) = Derived by applying (dividing) the indoor air CHHSL by CalEPA's recommended default attenuation factor of 0.05 for sub-slab vapor samples (CalEPA 2011b, Table 2).
(c) = CalEPA 2008.
(d) = Derived by applying (dividing) the indoor Air ESL by CalEPA's recommended default attenuation factor of 0.05 for sub-slab vapor samples (CalEPA 2011b, Table 2).
AF = Attenuation Factor.
ESL = Environmental Screening Levels.
EPA = Environmental Protection Agency.
µg/m³ = Micrograms per cubic meter.
ppbv = Parts per billion by volume.
ID = Identifcation.
TPHg = Total Petroleum Hydrocarbons as gasoline.
MTBE = Methyl tert-butyl ether.
NA = Not available.
<# = Not detected at or above indicated laboratory reporting limit.
J = Laboratory estimated value.

Table 2
Fixed Gas Analytical Results
76 Service Station No. 1156 (351645)
4276 MacArthur Boulevard, Oakland California

SAMPLE ID	DATE	OXYGEN *(%)*	METHANE *(%)*	CARBON DIOXIDE *(%)*	HELIUM *(%)*	NITROGEN *(%)*
Sub-slab Vapor Samples						
SS-1-V-N-20140608	6/8/2014	21	<0.00021	0.040	<0.11	79
SS-1-V-Y-20140608 (DUP)	6/8/2014	21	<0.00022	0.022	<0.11	79
Equipment Blank						
EB-1-20140608	6/8/2014	0.55	<0.00021	<0.021	<0.11	99

Notes:
ID = Identification.
(%) = Percentage of gas detected in sample canister by modified ASTM D-1946.
<# = Gas not detected at or above indicated laboratory reporting limit.

Appendix A

ACEH Approval of the Work Plan with Minor Edits on January 27, 2014

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

January 27, 2014

Nicole Arceneaux
Chevron Environmental Management Company
6101 Bollinger Canyon Road
San Ramon, CA 94583
(*Sent via E-mail to:* *nicole.arceneaux@Chevron.com*)

Ed Ralston
Phillips 66 Company
76 Broadway
Sacramento, CA 95818
(*Sent via E-mail to: Ed.C.Ralston@p66.com*)

Rajan Goswamy
4276 MacArthur Boulevard
Oakland, CA 94619
(Sent via E-mail to: rajgoswamy@sbcglobal.net)

Carole Quick and Lorraine Mudget
10214 SW Stuart Court
Portland, OR 97224-4304

Subject: Conditional Work Plan Approval for Fuel Leak Case No. RO0000409 and GeoTracker Global ID T0600102279, Unocal #1156, 4276 MacArthur Boulevard, Oakland, CA 94619

Dear Ms. Arceneaux, Mr. Ralston, Ms. Quick, Ms. Mudget, and Mr. Goswamy:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above-referenced site, including the most recent document entitled, "*Work Plan for Sub-slab Vapor, Indoor Air, and Outdoor Air Sampling and Vapor Intrusion Evaluation for the Oakland Veterinary Hospital Located at 4258 MacArthur Boulevard, Oakland, CA*," dated January 7, 2014 (Work Plan). The Work Plan proposes one sub-slab, one indoor air, and one outdoor air sample to evaluate vapor intrusion for the Oakland Veterinary Hospital building.

The proposed scope of work is conditionally approved and may be implemented provided that the technical comments below are addressed and incorporated during the proposed investigation. Submittal of a revised Work Plan is not required unless an alternate scope of work outside that described in the Work Plan and technical comments below is proposed. We request that you address the following technical comments, perform the proposed work, and send us the reports described below.

TECHNICAL COMMENTS

1. **Sampling Locations.** The Work Plan currently proposes the collection and analysis of only one indoor air and sub-slab vapor within the building. The California Department of Toxic Substances Control (DTSC) Vapor Intrusion Guidance indicates that the number and locations of samples within an office building should be based on the site-specific conditions but that samples should be collected from the primary work areas and near points of entry. Given that the building has two different foundation conditions, we request that a minimum of two indoor air samples be collected from the building. Therefore, we request that one indoor air sample be collected from the interior of the raised foundation half of the building in addition to the proposed indoor air sample within the portion of the building that has a slab foundation. Please present the results of the indoor air sampling in the Vapor Intrusion Report requested below.

2. **Sampling Duration.** DTSC guidance indicates that indoor air samples should be collected over a 24-hour period for the first sampling event in order to capture diurnal variations. Therefore, we request that the sampling duration for the first sampling event be expanded to 24 hours. The sampling duration for subsequent sampling events can be 8 hours over the period of anticipated exposure. Please present the results in the Vapor Intrusion Report requested below.

3. **Sampling Frequency.** DTSC guidance indicates that one indoor air sampling event is not representative of long-term exposure within a building. Therefore, we request that an additional sub-slab vapor, indoor air, and ambient air sampling event be collected in late summer.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACEH ftp site (Attention: Jerry Wickham), and to the State Water Resources Control Board's GeoTracker website according to the following schedule and file-naming convention:

- **March 7, 2014** – Site Assessment Work Plan
  File to be named: WP_R_yyyy-mm-dd RO409

- **March 30, 2014** – Semi-Annual Groundwater Monitoring Report
  File to be named: GWM_R_yyyy-mm-dd RO409

- **April 30, 2014** – Vapor Intrusion Report
  File to be named: SWI_R_yyyy-mm-dd RO409

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org. Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm. If your email address does not appear on the cover page of this notification, ACEH is requesting you provide your email address so that we can correspond with you quickly and efficiently regarding your case.

Sincerely,

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297
Senior Hazardous Materials Specialist

Attachment: Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 2032 (*Sent via E-mail to: lgriffin@oaklandnet.com*)

Maureen Dorsey, Oakland Veterinary Clinic, 4258 MacArthur Boulevard, Oakland, CA 94619

Brenda Evans, AECOM, 1220 Avenida Acaso, Camarillo, CA 93012 (*Sent via E-mail to: brenda.evans@aecom.com*)

Perry Pineda, Shell Oil Products US, 20945 S. Wilmington Ave., Carson, CA 90810-1039 (*Sent via (Sent via E-mail to: perry.pineda@shell.com*)

Peter Schaefer, Conestoga-Rovers & Associates, 5900 Hollis Street, Suite A Emeryville, CA 94608 (*Sent via E-mail to: pschaefer@craworld.com*)

Jerry Wickham, ACEH (*Sent via E-mail to: jerry.wickham@acgov.org*)

GeoTracker, e-File

Attachment 1

Responsible Party(ies) Legal Requirements/Obligations

REPORT/DATA REQUESTS

These reports/data are being requested pursuant to Division 7 of the California Water Code (Water Quality), Chapter 6.7 of Division 20 of the California Health and Safety Code (Underground Storage of Hazardous Substances), and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations (Underground Storage Tank Regulations).

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (Local Oversight Program [LOP] for unauthorized releases from petroleum Underground Storage Tanks [USTs], and Site Cleanup Program [SCP] for unauthorized releases of non-petroleum hazardous substances) require submission of reports in electronic format pursuant to Chapter 3 of Division 7, Sections 13195 and 13197.5 of the California Water Code, and Chapter 30, Articles 1 and 2, Sections 3890 to 3895 of Division 3 of Title 23 of the California Code of Regulations (23 CCR). Instructions for submission of electronic documents to the ACEH FTP site are provided on the attached "Electronic Report Upload Instructions."

Submission of reports to the ACEH FTP site is in addition to requirements for electronic submittal of information (ESI) to the State Water Resources Control Board's (SWRCB) Geotracker website. In April 2001, the SWRCB adopted 23 CCR, Division 3, Chapter 16, Article 12, Sections 2729 and 2729.1 (Electronic Submission of Laboratory Data for UST Reports). Article 12 required electronic submittal of analytical laboratory data submitted in a report to a regulatory agency (effective September 1, 2001), and surveyed locations (latitude, longitude and elevation) of groundwater monitoring wells (effective January 1, 2002) in Electronic Deliverable Format (EDF) to Geotracker. Article 12 was subsequently repealed in 2004 and replaced with Article 30 (Electronic Submittal of Information) which expanded the ESI requirements to include electronic submittal of any report or data required by a regulatory agency from a cleanup site. The expanded ESI submittal requirements for petroleum UST sites subject to the requirements of 23 CCR, Division, 3, Chapter 16, Article 11, became effective December 16, 2004. All other electronic submittals required pursuant to Chapter 30 became effective January 1, 2005. Please visit the SWRCB website for more information on these requirements. (http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/)

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 7835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, late reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

Alameda County Environmental Cleanup Oversight Programs (LOP and SCP)	**REVISION DATE:** July 25, 2012
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (petroleum UST and SCP) require submission of all reports in electronic form to the county's FTP site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single Portable Document Format (PDF) with no password protection**.
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to .loptoxic@acgov.org
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ://alcoftp1.acgov.org
      (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to .loptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

Appendix B

Inventory of Volatile Products

Alcohol, Isopropyl 70%

Blade wash---aliphatic petroleum distillates. In a metal can and also a Tupperware like container

Bleach 8.25% sodium hypochlorite

Carbolime granules---CO2 absorbant in the anesthesia machines.

Chlorhexidine 1% and ethyl alcohol 61% w/w as a spray cleanser

Chlorhexidine gluconate 2% soap solution

Chlorhexidine Gluconate Scrub 2% w/v with Aloe Vera

D128 Didecyl Dimethyl Ammonium Chloride 5.07% with NAlkyl(C14 50% C12 40% C16 10%) dimethyl benzyl ammonium chloride 3.38%

Dioctyl Sodium Sulfosuccinate 5%

Ethyl Alcohol hand gel

Formaldehyde in screw capped jars for tissue samples

Hydrogen Peroxide

Instrument Lubricant—Lubricating agent #8042-47-5 surfactants , propylene glycocol #57-55-6 and water #7732-18-5

Isoflurane—anesthetic agent

Med Chem Pink Solution—Alkyl 40% C12 50% C14 10% C16 Dimethyl Benzyl Ammonium Chlorides 0.133% Sodium Carbonate 0.416%

Methyl Alcohol 100%

Povidone Iodine scrub—0.75%titratable iodine

Povidone Iodine solution—5% (0.5% titratable iodine)

Universal Pink Liquid Detergent (used to soak surgical instruments)—Water #7732-18-5 surfactants and EDTA #64-02-8

The blood sample analyzer has cell lysing and other agents in plastic bottles with tubing that go directly into the analyzer. Ingredients unknown.

The radiograph film processor has film developer and film fixative solutions, ingredients unknown. (whatever is used to develop film like one used to have in the olden days before digital cameras).

Appendix C

Vapor Sampling Field Sheets

Soil Vapor Sample Collection Data

AECOM

10461 Old Placerville Rd ste 170
Sacramento, CA 95827

Client: Chevron Date 6/5/14

Project Number: ~~60260855.A10~~ 00213869

Site Location: ~~1840 North Main Street, Walnut Creek, CA~~ 4276 MacArthur

Field Personnel: Jim Harms

Subslab probe, 1/4" stainless steel probe

Sample Data	Sample ID	SS-1		SS-1D			
	Canister Serial No.	12377		36451			
	Flow Controller Serial No.	20261		30575			
	Sample Depth (Ft.)	Slab-		Slab			
	Tubing length	6'		6'			
	Purge Volume and Rate	33 @ 166	= 0.2 min	—			
	Calculated Duration of Purge (3 tubing volumes)	36 sec	—	—			
10-Minute Leak Test	Time Sample-Train Leak Test Begins	0910	0930				
	Initial Canister Vacuum (inches Hg)	-28	-29.5				
	Time Sample-Train Leak Test Ends	0920	0940				
	Duration of Leak Test	10 min	10 min				
	Final Canister Vacuum (inches Hg)	-28	-27.5		tube kinked at t- re-leak		
Purge	Time Beginning of Purge	0922	0941			check & purge	
	Time End of Purge	0922	0941				
	Actual Duration of Purge	36 sec	36 sec				
Sample Collection and Tracer Gas Monitoring	Initial Canister Vacuum (inches Hg)	-29.5		-29.5			
	Time Canister Opened	0942		0942			
	Measured Helium % initial	27.8					
	2 min.	27.8	35 min.				
	4 min.	27.2	40 min.				
	6min.	26.5	45 min.				
	8min.	26.0	50 min.				
	10 min.		55 min.				
	15 min.		60 min.				
	20 min.		____ min.				
	25 min.		____ min.				
	30 min.		____ min.				
	Comments		____ min.				
	Time Canister Closed						
	Final Canister Pressure (inches Hg)	-3.5		-3.5			
	Time of Sample Collection	0950		0950			

Notes:
Calculating Purge Volume: Length of tube (ft.) x 5.5 cc/linear foot (1/4" OD Teflon Tube)

Soil Vapor Sample Collection Data

AECOM

10461 Old Placerville Rd ste 170
Sacramento, CA 95827

Client: Chevron Date 6/8/14

Project Number: ~~60265855.A10~~ 00313869

Site Location: ~~1840 North Main Street, Walnut Creek, CA~~ 4276 MacArthur.

Field Personnel: Jim Harms

Subslab probe, 1/4" stainless steel probe

Sample Data	Sample ID	EB-1					
	Canister Serial No.	37387		36402			
	Flow Controller Serial No.	20200		22.4 psi N_2			
	Sample Depth (Ft.)	~~1.5~~ NA					
	Tubing length	1.5'					
	Purge Volume and Rate	NA					
	Calculated Duration of Purge (3 tubing volumes)	—					
10-Minute Leak Test	Time Sample-Train Leak Test Begins	0824					
	Initial Canister Vacuum (inches Hg)	-10					
	Time Sample-Train Leak Test Ends	0834					
	Duration of Leak Test	10 min					
	Final Canister Vacuum (inches Hg)	-10					
Purge	Time Beginning of Purge	—					
	Time End of Purge	—					
	Actual Duration of Purge	—					
Sample Collection and Tracer Gas Monitoring	Initial Canister Vacuum (inches Hg)	-30					
	Time Canister Opened	0835					
	Measured Helium % initial	NA					
	2 min.		35 min.				
	4 min.		40 min.				
	6min.		45 min.				
	8min.		50 min.				
	10 min.		55 min.				
	15 min.		60 min.				
	20 min.		____ min.				
	25 min.		____ min.				
	30 min.		____ min.				
	Comments		____ min.				
	Time Canister Closed	0839					
	Final Canister Pressure (inches Hg)	-3.5					
	Time of Sample Collection	0839					

Notes:
Calculating Purge Volume: Length of tube (ft.) x 5.5 cc/linear foot (1/4" OD Teflon Tube)

Soil Vapor Sample Collection Data

AECOM

10461 Old Placerville Rd ste 170
Sacramento, CA 95827

Client: Chevron Date 6/7/14

Project Number: ~~60268855.A10~~ 093869

Site Location: ~~1840 North Main Street, Walnut Creek, CA~~ 4276 MacArthur Blvd

Field Personnel: Jim Harms

Subslab probe, 1/4" stainless steel probe

Sample Data	Sample ID	1A-1		1A-2			
	Canister Serial No.	13653		31430			
	Flow Controller Serial No.	30694		40235			
	Sample Height (Ft.)	4.7'		4.6'			
	Tubing length	—		—			
	Purge Volume and Rate	6L - 3.49		6L - 3.49			
Sample Collection and Vacuum	Initial Canister Vacuum (inches Hg)	-30		-30			
	Time Canister Opened	1430		1430			
	30 min.	-29.25		-29.0			
	~~60 min.~~ 0730	-14		-12.5			
	90min. 0815	-13.5		-12.0			
	~~120min.~~ 1000	-11.0		-9.5			
	~~150 min.~~ 1100	-10.0		-8.0			
	~~180 min.~~ 1200	-9.0		-7.0			
	~~210 min.~~ 1300	-8.5		-6.0			
	~~240 min.~~ 1400	-7.5		-4.5			
	270 min 1430	-7.0		-4.0			
	300 min.						
	330 min.						
	360 min.						
	390 min.						
	420 min.						
	450 min.						
	480 min.						
	Comments						
	Time Canister Closed	1430		1430			
	Final Canister Pressure (inches Hg)	-7.0		-4.0			
	Time of Sample Collection	1430		1430			

Notes:
Calculating Purge Volume: Length of tube (ft.) x 5.5 cc/linear foot (1/4" OD Teflon Tube)

Soil Vapor Sample Collection Data

AECOM

10461 Old Placerville Rd ste 170
Sacramento, CA 95827

Client: Chevron

Date 6/8/14

Project Number: ~~60260855.A10~~ 60313869

Site Location: ~~1840 North Main Street, Walnut Creek, CA~~ 4276 MacArthur Blvd

Field Personnel: Jim Harms

Subslab probe, 1/4" stainless steel probe

Sample Data	Sample ID	OA-1					
	Canister Serial No.	34218					
	Flow Controller Serial No.	FC01000					
	Sample Height (Ft.)	6.01					
	Tubing length	—					
	Purge Volume and Rate	6L, 11.5					
Sample Collection and Vacuum	Initial Canister Vacuum (inches Hg)	-30					
	Time Canister Opened	0630					
	30 min.	-28					
	60 min.	-27					
	90min.	-25					
	120min.	—					
	150 min.	—					
	180 min.	—					
	210 min.	-16.5					
	240 min.	—					
	270 min.	-13.5					
	300 min.	—					
	330 min.	-11.5					
	360 min.	—					
	390 min.	-9.0					
	420 min.	—					
	450 min.	-7.5	~~0945 M.A~~ JM				
	480 min.	-6.5					
	Comments						
	Time Canister Closed	1445					
	Final Canister Pressure (inches Hg)	-6.0					
	Time of Sample Collection	1445					

Notes:
Calculating Purge Volume: Length of tube (ft.) x 5.5 cc/linear foot (1/4" OD Teflon Tube)

CHAIN OF CUSTODY

AECOM

Lab: Eurofins Air Toxics

TAT: Standard

Report results to:

Name	Brenda Evans (brenda.evans@aecom.com)
Company	AECOM
Mailing Address	1220 Avenida Acaso
City, State, Zip	Camarillo, CA 93012
Telephone No.	805.233.3988
Fax No.	805.388.3577

Project Information

Chevron Facility:	351645
Site Address:	4276 MacArthur Blvd, Oakland CA
AECOM No.	60316610-07.11
PO No.	54253ACM

Special instructions and/or specific regulatory requirements:

report results in micrograms per cubic meter

ref JM

Sample Identification	Date Sampled	Time Sampled	Can #	CO2, He, N2, O2, CH4 - ASTM D-1946 mod	TPHg, BTEX, MTBE, Naph by Modified TO-15 APH Fractions (Sp)-Full list+Nap+APH	TPHg, BTEX, MTBE, Naph by Modified TO-15 Hi/Lo – VOCs by GC/MS SIM/Full Scan Modified TO-15 Hi/Lo (SP)-BTEX, MTBE< Naph & TPHg (Naph @ SIM 0.05)	Canister Pressure/Vacuum Initial	Canister Pressure/Vacuum Final	Initial	Final	Comments
SS-1-V-N-20140608	08-Jun-14	950	12377	X	X		-29.5	-3.5			
SS-1-V-Y-20140608	08-Jun-14	950	36451	X	X		-29.5	-3.5			
EB-1-V-N-20140608	08-Jun-14	839	37387	X	X		-30	-3.5			
IA-1-V-N-20140608	08-Jun-14	1430	13653			X	-30	-7			
IA-2-V-N-20140608	08-Jun-14	1430	31430			X	-30	-4			
OA-1-V-N-20140608	08-Jun-14	1445	34218		X		-30	-6			

Relinquished by: _____ ***Date/Time*** 6/8/14 1528

Relinquished by: _____ ***Date/Time*** _____

Method of Shipment: Hand Delivery

Received by: _____ EAT ***Date/Time*** 6/9/14 1528

Received by: _____ ***Date/Time*** _____

Sample Condition on Rcpt: _____

Custody Seal Intact?
Y N None Temp NA
H/D

Certificate of Calibration

EQUIPMENT/MODEL	DESCRIPTION	SERIAL NUMBER
DIELECTRIC TECH/MGD-2002	HELIUM DETECTOR	041131

This instrument has been calibrated using calibration solution and procedures which are traceable to N.I.S.T.. Test and calibration data is on file with the manufacturer.

Calibration Date	Calibration Gas	Technical Rep.
06/6/2014	HELIUM 99.95% TESTED	Karrie

EnviroSupply & Service INC.

www.envirosupply.net

1-800-201-8150

Appendix D

Laboratory Analytical Reports for the June 8, 2014, Sampling Event

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6/24/2014
Mr. Jim Harms
AECOM Environment
2020 L Street
4th Floor Suite 400
Sacramento CA 95811

Project Name:
Project #:
Workorder #: 1406128A

Dear Mr. Jim Harms

The following report includes the data for the above referenced project for sample(s) received on 6/9/2014 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1406128A

Work Order Summary

CLIENT:	Mr. Jim Harms AECOM Environment 2020 L Street 4th Floor Suite 400 Sacramento, CA 95811	**BILL TO:**	Accounts Payable Camarillo AECOM Environment 1220 Avenida Acaso Camarillo, CA 93012
PHONE:	916-362-7100	**P.O. #**	54253ACM
FAX:	916-362-8100	**PROJECT #**	
DATE RECEIVED:	06/09/2014	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	06/24/2014		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SS-1-V-N-20140608	TO-15	2 "Hg	14.6 psi
02A	SS-1-V-Y-20140608	TO-15	2.8 "Hg	14.9 psi
03A	EB-1-V-N-20140608	TO-15	1.6 "Hg	14.9 psi
06A	OA-1-V-N-20140608	TO-15	6.9 "Hg	5 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY:  DATE: 06/24/14

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
AECOM Environment
Workorder# 1406128A

Three 1 Liter Summa Canister (100% Certified) and one 6 Liter Summa Canister (SIM Certified) samples were received on June 09, 2014. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SS-1-V-N-20140608

Lab ID#: 1406128A-01A

No Detections Were Found.

Client Sample ID: SS-1-V-Y-20140608

Lab ID#: 1406128A-02A

No Detections Were Found.

Client Sample ID: EB-1-V-N-20140608

Lab ID#: 1406128A-03A

No Detections Were Found.

Client Sample ID: OA-1-V-N-20140608

Lab ID#: 1406128A-06A

No Detections Were Found.

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Client Sample ID: SS-1-V-N-20140608

Lab ID#: 1406128A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061914**	**Date of Collection: 6/8/14 9:50:00 AM**	
Dil. Factor:	**2.14**	**Date of Analysis: 6/19/14 03:27 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.1	Not Detected	3.8	Not Detected
Benzene	1.1	Not Detected	3.4	Not Detected
Toluene	1.1	Not Detected	4.0	Not Detected
Ethyl Benzene	1.1	Not Detected	4.6	Not Detected
m,p-Xylene	1.1	Not Detected	4.6	Not Detected
o-Xylene	1.1	Not Detected	4.6	Not Detected
Naphthalene	4.3	Not Detected	22	Not Detected
TPH ref. to Gasoline (MW=100)	54	Not Detected	220	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: SS-1-V-Y-20140608

Lab ID#: 1406128A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061913**	**Date of Collection: 6/8/14 9:50:00 AM**	
Dil. Factor:	**2.22**	**Date of Analysis: 6/19/14 03:05 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.1	Not Detected	4.0	Not Detected
Benzene	1.1	Not Detected	3.5	Not Detected
Toluene	1.1	Not Detected	4.2	Not Detected
Ethyl Benzene	1.1	Not Detected	4.8	Not Detected
m,p-Xylene	1.1	Not Detected	4.8	Not Detected
o-Xylene	1.1	Not Detected	4.8	Not Detected
Naphthalene	4.4	Not Detected	23	Not Detected
TPH ref. to Gasoline (MW=100)	56	Not Detected	230	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: EB-1-V-N-20140608

Lab ID#: 1406128A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061915**	**Date of Collection: 6/8/14 8:39:00 AM**	
Dil. Factor:	**2.13**	**Date of Analysis: 6/19/14 03:49 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.1	Not Detected	3.8	Not Detected
Benzene	1.1	Not Detected	3.4	Not Detected
Toluene	1.1	Not Detected	4.0	Not Detected
Ethyl Benzene	1.1	Not Detected	4.6	Not Detected
m,p-Xylene	1.1	Not Detected	4.6	Not Detected
o-Xylene	1.1	Not Detected	4.6	Not Detected
Naphthalene	4.3	Not Detected	22	Not Detected
TPH ref. to Gasoline (MW=100)	53	Not Detected	220	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: OA-1-V-N-20140608

Lab ID#: 1406128A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061916**	**Date of Collection: 6/8/14 2:45:00 PM**	
Dil. Factor:	**1.74**	**Date of Analysis: 6/19/14 04:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.87	Not Detected	3.1	Not Detected
Benzene	0.87	Not Detected	2.8	Not Detected
Toluene	0.87	Not Detected	3.3	Not Detected
Ethyl Benzene	0.87	Not Detected	3.8	Not Detected
m,p-Xylene	0.87	Not Detected	3.8	Not Detected
o-Xylene	0.87	Not Detected	3.8	Not Detected
Naphthalene	3.5	Not Detected	18	Not Detected
TPH ref. to Gasoline (MW=100)	44	Not Detected	180	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1406128A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061911**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/19/14 01:56 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected
TPH ref. to Gasoline (MW=100)	25	Not Detected	100	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: CCV

Lab ID#: 1406128A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/19/14 08:15 AM**	

Compound	%Recovery
Methyl tert-butyl ether	97
Benzene	101
Toluene	102
Ethyl Benzene	100
m,p-Xylene	100
o-Xylene	100
Naphthalene	95
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: LCS

Lab ID#: 1406128A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061905**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/19/14 09:36 AM**	

Compound	%Recovery	Method Limits
Methyl tert-butyl ether	101	70-130
Benzene	102	70-130
Toluene	100	70-130
Ethyl Benzene	100	70-130
m,p-Xylene	100	70-130
o-Xylene	100	70-130
Naphthalene	77	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: LCSD

Lab ID#: 1406128A-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061906**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/19/14 09:58 AM**	

Compound	%Recovery	Method Limits
Methyl tert-butyl ether	102	70-130
Benzene	103	70-130
Toluene	100	70-130
Ethyl Benzene	99	70-130
m,p-Xylene	101	70-130
o-Xylene	99	70-130
Naphthalene	77	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	99	70-130

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6/23/2014
Mr. Jim Harms
AECOM Environment
2020 L Street
4th Floor Suite 400
Sacramento CA 95811

Project Name:
Project #:
Workorder #: 1406128B

Dear Mr. Jim Harms

The following report includes the data for the above referenced project for sample(s) received on 6/9/2014 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1406128B

Work Order Summary

CLIENT:	Mr. Jim Harms AECOM Environment 2020 L Street 4th Floor Suite 400 Sacramento, CA 95811	**BILL TO:**	Accounts Payable Camarillo AECOM Environment 1220 Avenida Acaso Camarillo, CA 93012
PHONE:	916-362-7100	**P.O. #**	54253ACM
FAX:	916-362-8100	**PROJECT #**	
DATE RECEIVED:	06/09/2014	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	06/23/2014		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SS-1-V-N-20140608	Modified ASTM D-1946	2 "Hg	14.6 psi
02A	SS-1-V-Y-20140608	Modified ASTM D-1946	2.8 "Hg	14.9 psi
03A	EB-1-V-N-20140608	Modified ASTM D-1946	1.6 "Hg	14.9 psi
04A	Lab Blank	Modified ASTM D-1946	NA	NA
04B	Lab Blank	Modified ASTM D-1946	NA	NA
05A	LCS	Modified ASTM D-1946	NA	NA
05AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:  DATE: 06/23/14

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
AECOM Environment
Workorder# 1406128B

Three 1 Liter Summa Canister (100% Certified) samples were received on June 09, 2014. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Since Nitrogen is used to pressurize samples, the reported Nitrogen values are calculated by adding all the sample components and subtracting from 100%.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: SS-1-V-N-20140608

Lab ID#: 1406128B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	21
Nitrogen	0.21	79
Carbon Dioxide	0.021	0.040

Client Sample ID: SS-1-V-Y-20140608

Lab ID#: 1406128B-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	21
Nitrogen	0.22	79
Carbon Dioxide	0.022	0.042

Client Sample ID: EB-1-V-N-20140608

Lab ID#: 1406128B-03A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	0.55
Nitrogen	0.21	99

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Client Sample ID: SS-1-V-N-20140608

Lab ID#: 1406128B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062013**	**Date of Collection: 6/8/14 9:50:00 AM**	
Dil. Factor:	**2.14**	**Date of Analysis: 6/20/14 01:39 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.21	21
Nitrogen	0.21	79
Carbon Dioxide	0.021	0.040
Methane	0.00021	Not Detected
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: SS-1-V-Y-20140608

Lab ID#: 1406128B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062014**	**Date of Collection: 6/8/14 9:50:00 AM**	
Dil. Factor:	**2.22**	**Date of Analysis: 6/20/14 02:05 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	21
Nitrogen	0.22	79
Carbon Dioxide	0.022	0.042
Methane	0.00022	Not Detected
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: EB-1-V-N-20140608

Lab ID#: 1406128B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062015**	**Date of Collection: 6/8/14 8:39:00 AM**	
Dil. Factor:	**2.13**	**Date of Analysis: 6/20/14 03:16 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	0.55
Nitrogen	0.21	99
Carbon Dioxide	0.021	Not Detected
Methane	0.00021	Not Detected
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: Lab Blank

Lab ID#: 1406128B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062006**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/20/14 09:53 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Dioxide	0.010	Not Detected
Methane	0.00010	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: Lab Blank

Lab ID#: 1406128B-04B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062004c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/20/14 09:02 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Helium	0.050	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1406128B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062002**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/20/14 07:56 AM**	

Compound	%Recovery	Method Limits
Oxygen	100	85-115
Nitrogen	93	85-115
Carbon Dioxide	99	85-115
Methane	104	85-115
Helium	99	85-115

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1406128B-05AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062025**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/20/14 09:01 PM**	

Compound	%Recovery	Method Limits
Oxygen	100	85-115
Nitrogen	93	85-115
Carbon Dioxide	99	85-115
Methane	105	85-115
Helium	99	85-115

Container Type: NA - Not Applicable

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6/24/2014
Mr. Jim Harms
AECOM Environment
2020 L Street
4th Floor Suite 400
Sacramento CA 95811

Project Name:
Project #:
Workorder #: 1406128C

Dear Mr. Jim Harms

The following report includes the data for the above referenced project for sample(s) received on 6/9/2014 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 APH are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1406128C

Work Order Summary

CLIENT:	Mr. Jim Harms AECOM Environment 2020 L Street 4th Floor Suite 400 Sacramento, CA 95811	**BILL TO:**	Accounts Payable Camarillo AECOM Environment 1220 Avenida Acaso Camarillo, CA 93012
PHONE:	916-362-7100	**P.O. #**	54253ACM
FAX:	916-362-8100	**PROJECT #**	
DATE RECEIVED:	06/09/2014	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	06/24/2014		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SS-1-V-N-20140608	Modified TO-15 APH	2 "Hg	14.6 psi
01B	SS-1-V-N-20140608	Modified TO-15 APH	2 "Hg	14.6 psi
02A	SS-1-V-Y-20140608	Modified TO-15 APH	2.8 "Hg	14.9 psi
02B	SS-1-V-Y-20140608	Modified TO-15 APH	2.8 "Hg	14.9 psi
03A	EB-1-V-N-20140608	Modified TO-15 APH	1.6 "Hg	14.9 psi
03B	EB-1-V-N-20140608	Modified TO-15 APH	1.6 "Hg	14.9 psi
06A	OA-1-V-N-20140608	Modified TO-15 APH	6.9 "Hg	5 psi
06B	OA-1-V-N-20140608	Modified TO-15 APH	6.9 "Hg	5 psi
07A	Lab Blank	Modified TO-15 APH	NA	NA
07B	Lab Blank	Modified TO-15 APH	NA	NA
08A	CCV	Modified TO-15 APH	NA	NA
08B	CCV	Modified TO-15 APH	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 06/24/14

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 & VPH Fractions
AECOM Environment
Workorder# 1406128C

Three 1 Liter Summa Canister (100% Certified) and one 6 Liter Summa Canister (SIM Certified) samples were received on June 09, 2014. The laboratory performed analysis via EPA Method TO-15 and Air Toxics VPH (Volatile Petroleum Hydrocarbon) methods for the Determination of VPH Fractions using GC/MS in the full scan mode. The method involves concentrating up to 0.5 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis. This method is designed to measure gaseous phase aliphatic and aromatic compounds in ambient air and soil gas collected in stainless steel Summa canisters. Air Toxics VPH method is a hybrid of EPA TO-15, MADEP APH and WSDE VPH methods. Chromatographic peaks were identified via mass spectrum as either aliphatic or aromatic petroleum hydrocarbons and included in the appropriate range as defined by the method. The volatile Aliphatic hydrocarbons are collectively quantified within the C5 to C6 range, C6 to C8 range, C8 to C10 range and the C10 to C12 range. Additionally, the volatile Aromatic hydrocarbons are collectively quantified within the C8 to C10 range and the C10 to C12 range. The Aromatic ranges refer to the equivalent carbon (EC) ranges.

Aliphatic data is calculated from the Total Ion chromatogram which has been reprocessed in a duplicate file differentiated from the original by the addition of an alphanumeric extension. The Aromatic calculation also uses the information contained in the associated Extracted Ion file.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SS-1-V-N-20140608

Lab ID#: 1406128C-01A
No Detections Were Found.

Client Sample ID: SS-1-V-N-20140608

Lab ID#: 1406128C-01B
No Detections Were Found.

Client Sample ID: SS-1-V-Y-20140608

Lab ID#: 1406128C-02A
No Detections Were Found.

Client Sample ID: SS-1-V-Y-20140608

Lab ID#: 1406128C-02B
No Detections Were Found.

Client Sample ID: EB-1-V-N-20140608

Lab ID#: 1406128C-03A
No Detections Were Found.

Client Sample ID: EB-1-V-N-20140608

Lab ID#: 1406128C-03B
No Detections Were Found.

Client Sample ID: OA-1-V-N-20140608

Lab ID#: 1406128C-06A
No Detections Were Found.

Client Sample ID: OA-1-V-N-20140608

Lab ID#: 1406128C-06B
No Detections Were Found.

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Client Sample ID: SS-1-V-N-20140608

Lab ID#: 1406128C-01A

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061914a**	**Date of Collection: 6/8/14 9:50:00 AM**	
Dil. Factor:	**2.14**	**Date of Analysis: 6/19/14 03:27 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
C5-C6 Aliphatic Hydrocarbons (ref. to Pentane + Hexane)	21	Not Detected	69	Not Detected
>C6-C8 Aliphatic Hydrocarbons (ref. to Heptane)	21	Not Detected	88	Not Detected
>C8-C10 Aliphatic Hydrocarbons (ref. to Decane)	21	Not Detected	120	Not Detected
>C10-C12 Aliphatic Hydrocarbons (ref. to Dodecane)	21	Not Detected	150	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: SS-1-V-N-20140608

Lab ID#: 1406128C-01B

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061914c**	**Date of Collection: 6/8/14 9:50:00 AM**	
Dil. Factor:	**2.14**	**Date of Analysis: 6/19/14 03:27 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
>C8-C10 Aromatic Hydrocarbons	21	Not Detected	100	Not Detected
>C10-C12 Aromatic Hydrocarbons	21	Not Detected	120	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

eurofins | Air Toxics

Client Sample ID: SS-1-V-Y-20140608

Lab ID#: 1406128C-02A

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061913a**	**Date of Collection: 6/8/14 9:50:00 AM**	
Dil. Factor:	**2.22**	**Date of Analysis: 6/19/14 03:05 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
C5-C6 Aliphatic Hydrocarbons (ref. to Pentane + Hexane)	22	Not Detected	72	Not Detected
>C6-C8 Aliphatic Hydrocarbons (ref. to Heptane)	22	Not Detected	91	Not Detected
>C8-C10 Aliphatic Hydrocarbons (ref. to Decane)	22	Not Detected	130	Not Detected
>C10-C12 Aliphatic Hydrocarbons (ref. to Dodecane)	22	Not Detected	150	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: SS-1-V-Y-20140608

Lab ID#: 1406128C-02B

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061913c**	**Date of Collection: 6/8/14 9:50:00 AM**	
Dil. Factor:	**2.22**	**Date of Analysis: 6/19/14 03:05 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
>C8-C10 Aromatic Hydrocarbons	22	Not Detected	110	Not Detected
>C10-C12 Aromatic Hydrocarbons	22	Not Detected	120	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: EB-1-V-N-20140608

Lab ID#: 1406128C-03A

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061915a**	**Date of Collection: 6/8/14 8:39:00 AM**	
Dil. Factor:	**2.13**	**Date of Analysis: 6/19/14 03:49 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
C5-C6 Aliphatic Hydrocarbons (ref. to Pentane + Hexane)	21	Not Detected	69	Not Detected
>C6-C8 Aliphatic Hydrocarbons (ref. to Heptane)	21	Not Detected	87	Not Detected
>C8-C10 Aliphatic Hydrocarbons (ref. to Decane)	21	Not Detected	120	Not Detected
>C10-C12 Aliphatic Hydrocarbons (ref. to Dodecane)	21	Not Detected	150	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: EB-1-V-N-20140608

Lab ID#: 1406128C-03B

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061915c**	**Date of Collection: 6/8/14 8:39:00 AM**	
Dil. Factor:	**2.13**	**Date of Analysis: 6/19/14 03:49 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
>C8-C10 Aromatic Hydrocarbons	21	Not Detected	100	Not Detected
>C10-C12 Aromatic Hydrocarbons	21	Not Detected	120	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: OA-1-V-N-20140608

Lab ID#: 1406128C-06A

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061916a**	**Date of Collection: 6/8/14 2:45:00 PM**	
Dil. Factor:	**1.74**	**Date of Analysis: 6/19/14 04:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
C5-C6 Aliphatic Hydrocarbons (ref. to Pentane + Hexane)	17	Not Detected	56	Not Detected
>C6-C8 Aliphatic Hydrocarbons (ref. to Heptane)	17	Not Detected	71	Not Detected
>C8-C10 Aliphatic Hydrocarbons (ref. to Decane)	17	Not Detected	100	Not Detected
>C10-C12 Aliphatic Hydrocarbons (ref. to Dodecane)	17	Not Detected	120	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

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Client Sample ID: OA-1-V-N-20140608

Lab ID#: 1406128C-06B

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061916c**	**Date of Collection: 6/8/14 2:45:00 PM**	
Dil. Factor:	**1.74**	**Date of Analysis: 6/19/14 04:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
>C8-C10 Aromatic Hydrocarbons	17	Not Detected	86	Not Detected
>C10-C12 Aromatic Hydrocarbons	17	Not Detected	96	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1406128C-07A

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061911a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/19/14 01:56 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
C5-C6 Aliphatic Hydrocarbons (ref. to Pentane + Hexane)	10	Not Detected	32	Not Detected
>C6-C8 Aliphatic Hydrocarbons (ref. to Heptane)	10	Not Detected	41	Not Detected
>C8-C10 Aliphatic Hydrocarbons (ref. to Decane)	10	Not Detected	58	Not Detected
>C10-C12 Aliphatic Hydrocarbons (ref. to Dodecane)	10	Not Detected	70	Not Detected

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1406128C-07B

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061911c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/19/14 01:56 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
>C8-C10 Aromatic Hydrocarbons	10	Not Detected	49	Not Detected
>C10-C12 Aromatic Hydrocarbons	10	Not Detected	55	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: CCV

Lab ID#: 1406128C-08A

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061907a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/19/14 10:49 AM**	

Compound	%Recovery
C5-C6 Aliphatic Hydrocarbons (ref. to Pentane + Hexane)	99
>C6-C8 Aliphatic Hydrocarbons (ref. to Heptane)	97
>C8-C10 Aliphatic Hydrocarbons (ref. to Decane)	97
>C10-C12 Aliphatic Hydrocarbons (ref. to Dodecane)	74

Container Type: NA - Not Applicable

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Client Sample ID: CCV

Lab ID#: 1406128C-08B

MODIFIED METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061907c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/19/14 10:49 AM**	

Compound	%Recovery
>C8-C10 Aromatic Hydrocarbons	97
>C10-C12 Aromatic Hydrocarbons	76

Container Type: NA - Not Applicable

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6/24/2014
Mr. Jim Harms
AECOM Environment
2020 L Street
4th Floor Suite 400
Sacramento CA 95811

Project Name:
Project #:
Workorder #: 1406128D

Dear Mr. Jim Harms

The following report includes the data for the above referenced project for sample(s) received on 6/9/2014 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1406128D

Work Order Summary

CLIENT:	Mr. Jim Harms AECOM Environment 2020 L Street 4th Floor Suite 400 Sacramento, CA 95811	**BILL TO:**	Accounts Payable Camarillo AECOM Environment 1220 Avenida Acaso Camarillo, CA 93012
PHONE:	916-362-7100	**P.O. #**	54253ACM
FAX:	916-362-8100	**PROJECT #**	
DATE RECEIVED:	06/09/2014	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	06/24/2014		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
04A	IA-1-V-N-20140608	Modified TO-15	6.5 "Hg	5 psi
04B	IA-1-V-N-20140608	Modified TO-15	6.5 "Hg	5 psi
05A	IA-2-V-N-20140608	Modified TO-15	3.7 "Hg	4.9 psi
05B	IA-2-V-N-20140608	Modified TO-15	3.7 "Hg	4.9 psi
06A	Lab Blank	Modified TO-15	NA	NA
06B	Lab Blank	Modified TO-15	NA	NA
07A	CCV	Modified TO-15	NA	NA
07B	CCV	Modified TO-15	NA	NA
08A	LCS	Modified TO-15	NA	NA
08AA	LCSD	Modified TO-15	NA	NA
08B	LCS	Modified TO-15	NA	NA
08BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:  DATE: 06/24/14

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 956
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 Full Scan/SIM
AECOM Environment
Workorder# 1406128D

Two 6 Liter Summa Canister (SIM Certified) samples were received on June 09, 2014. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	For Full Scan: 30% RSD with 4 compounds allowed out to < 40% RSD For SIM: Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	For Full Scan: </= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers For SIM: Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All the canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: IA-1-V-N-20140608

Lab ID#: 1406128D-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH ref. to Gasoline (MW=100)	17	21	70	86

Client Sample ID: IA-1-V-N-20140608

Lab ID#: 1406128D-04B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.086	0.18	0.27	0.58
Toluene	0.034	0.51	0.13	1.9
Ethyl Benzene	0.034	0.070	0.15	0.30
m,p-Xylene	0.068	0.23	0.30	1.0
o-Xylene	0.034	0.090	0.15	0.39
Naphthalene	0.086	0.061 J	0.45	0.32 J

Client Sample ID: IA-2-V-N-20140608

Lab ID#: 1406128D-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH ref. to Gasoline (MW=100)	15	23	62	94

Client Sample ID: IA-2-V-N-20140608

Lab ID#: 1406128D-05B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.15	0.0036 J	0.55	0.013 J
Benzene	0.076	0.17	0.24	0.56
Toluene	0.030	0.44	0.11	1.6
Ethyl Benzene	0.030	0.066	0.13	0.29
m,p-Xylene	0.061	0.22	0.26	0.95
o-Xylene	0.030	0.081	0.13	0.35
Naphthalene	0.076	0.036 J	0.40	0.19 J

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Client Sample ID: IA-1-V-N-20140608

Lab ID#: 1406128D-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062310**	**Date of Collection: 6/8/14 2:30:00 PM**	
Dil. Factor:	**1.71**	**Date of Analysis: 6/23/14 03:20 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH ref. to Gasoline (MW=100)	17	21	70	86

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: IA-1-V-N-20140608

Lab ID#: 1406128D-04B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062310sim**	**Date of Collection: 6/8/14 2:30:00 PM**	
Dil. Factor:	**1.71**	**Date of Analysis: 6/23/14 03:20 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.17	Not Detected	0.62	Not Detected
Benzene	0.086	0.18	0.27	0.58
Toluene	0.034	0.51	0.13	1.9
Ethyl Benzene	0.034	0.070	0.15	0.30
m,p-Xylene	0.068	0.23	0.30	1.0
o-Xylene	0.034	0.090	0.15	0.39
Naphthalene	0.086	0.061 J	0.45	0.32 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: IA-2-V-N-20140608

Lab ID#: 1406128D-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062311**	**Date of Collection: 6/8/14 2:30:00 PM**	
Dil. Factor:	**1.52**	**Date of Analysis: 6/23/14 04:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH ref. to Gasoline (MW=100)	15	23	62	94

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: IA-2-V-N-20140608

Lab ID#: 1406128D-05B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062311sim**	**Date of Collection: 6/8/14 2:30:00 PM**	
Dil. Factor:	**1.52**	**Date of Analysis: 6/23/14 04:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.15	0.0036 J	0.55	0.013 J
Benzene	0.076	0.17	0.24	0.56
Toluene	0.030	0.44	0.11	1.6
Ethyl Benzene	0.030	0.066	0.13	0.29
m,p-Xylene	0.061	0.22	0.26	0.95
o-Xylene	0.030	0.081	0.13	0.35
Naphthalene	0.076	0.036 J	0.40	0.19 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1406128D-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062309**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/23/14 02:22 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH ref. to Gasoline (MW=100)	10	Not Detected	41	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	89	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1406128D-06B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062309simc**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/23/14 02:22 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected
Benzene	0.050	0.011 J	0.16	0.034 J
Toluene	0.020	0.011 J	0.075	0.041 J
Ethyl Benzene	0.020	0.0029 J	0.087	0.012 J
m,p-Xylene	0.040	0.014 J	0.17	0.061 J
o-Xylene	0.020	0.0068 J	0.087	0.030 J
Naphthalene	0.050	0.025 J	0.26	0.13 J

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: CCV

Lab ID#: 1406128D-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062302**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/23/14 08:20 AM**	

Compound	**%Recovery**
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: CCV

Lab ID#: 1406128D-07B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062302sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/23/14 08:20 AM**	

Compound	%Recovery
Methyl tert-butyl ether	89
Benzene	72
Toluene	82
Ethyl Benzene	88
m,p-Xylene	89
o-Xylene	90
Naphthalene	77

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: LCS

Lab ID#: 1406128D-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062303**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/23/14 09:04 AM**	

Compound	**%Recovery**	**Method Limits**
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: LCSD

Lab ID#: 1406128D-08AA

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/23/14 09:49 AM**	

Compound	**%Recovery**	**Method Limits**
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	106	70-130

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Client Sample ID: LCS

Lab ID#: 1406128D-08B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062303sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/23/14 09:04 AM**	

Compound	%Recovery	Method Limits
Methyl tert-butyl ether	110	70-130
Benzene	91	70-130
Toluene	101	70-130
Ethyl Benzene	108	70-130
m,p-Xylene	113	70-130
o-Xylene	110	70-130
Naphthalene	111	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	107	70-130

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Client Sample ID: LCSD

Lab ID#: 1406128D-08BB

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e062304sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/23/14 09:49 AM**	

Compound	%Recovery	Method Limits
Methyl tert-butyl ether	108	70-130
Benzene	89	70-130
Toluene	99	70-130
Ethyl Benzene	108	70-130
m,p-Xylene	114	70-130
o-Xylene	111	70-130
Naphthalene	114	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	108	70-130