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February 27, 2015

Alameda County Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
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**RECEIVED**

*By Alameda County Environmental Health at 12:46 pm, Mar 02, 2015*

**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 Second Sub-Slab Vapor, Indoor Air, and Outdoor Air Sampling and Vapor Intrusion Evaluation dated February 2015.

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*

# Report on Second 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



Prepared for:  
EMC  
San Ramon, California

Prepared by:  
AECOM  
Camarillo, California  
February 2015

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76 Service Station No. 1156 (351645)  
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: Chad Roper, PhD  
Senior Project Manager

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2/27/15

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## 1.0 Introduction

On behalf of Chevron Environmental Management Company (EMC), AECOM is pleased to submit this report on the second 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. Sampling was to consist of two events in different seasons. The initial sampling took place on June 6 and 7, 2014 (AECOM 2014) and the second sampling was completed on January 17 and 18, 2015. Correspondence related to these schedule changes is provided as **Appendix A**.

Each sampling event collected samples from the following locations: one sub-slab vapor probe (SS-1), two indoor air locations (IA-1 and IA-2), and one ambient outdoor air locations (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's 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

AECOM inventoried and reviewed potential indoor air sources of volatile organic compounds (VOCs) with the building occupant. A copy of the inventory is included as **Appendix B**. AECOM requested that, to the extent possible, smoking, cleaning, painting, solvent use, cosmetic application, or hydrocarbon storage be eliminated inside of the building for at least 24 hours preceding the sampling event.

### 2.2 Sub-slab Vapor Probe Sampling Procedures

The following subsections provide general information regarding the procedures followed during collection of the soil vapor probe samples. **Figure 3** provides an illustration of the sub-slab vapor probe construction detail. Sampling methods followed the procedures recommended by CalEPA (CalEPA 2011a; 2012). Sub-slab vapor was sampled on January 18, 2015.

#### 2.2.1 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<sup>®</sup> tubing, which were supplied by the laboratory and have a low capacity for adsorbing VOCs. Samples were collected in 1-liter Summa<sup>®</sup> 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.

#### 2.2.2 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<sup>®</sup> canister valve was opened to the still-closed Swagelok<sup>®</sup> 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 19.7% to 22.2% helium during sampling. Field measured helium concentrations were recorded on vapor sampling field sheets included as **Appendix C**. 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).

### 2.2.3 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**.

### 2.2.4 Sub-slab Sample Collection

To draw the soil vapor to the surface, a vacuum was created using an evacuated Summa<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> 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.

## 2.3 Indoor Air and Outdoor Air Sampling Procedures

As with the first sampling event, 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**.

During the first sampling event (June 6 and 7, 2014), the indoor air samples were collected over a 24-hour period and the outdoor air sample over an 8-hour period (AECOM 2014). Based on AECOM's recommendation to improve the comparability of the indoor and outdoor air samples, the outdoor sample was also collected over a 24-hour period during this second event, so both the indoor air and outdoor air samples were collected over a 24-hour period (from January 17 to January 18, 2015).

These time-integrated indoor and outdoor air samples were collected using 6-liter Summa<sup>®</sup> canisters obtained from Air Toxics. All Summa<sup>®</sup> 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 sample locations are indicated on **Figure 2**. Indoor air sample canisters 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. The outdoor air sample was collected on the upwind (southwestern) 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.

## 2.4 Laboratory Analysis

Air Toxics analyzed a total of six samples including one equipment blank from this sampling event.

The sub-slab vapor sample was 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). 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, the most sensitive analysis that the laboratory could provide from the 1-liter Summa<sup>®</sup> canisters collected. In an effort to get the most comparable information from this analysis, detections below the reporting limit were requested to be reported.

The indoor air and outdoor air samples were analyzed for TPHg, BTEX, MTBE, and naphthalene using Modified USEPA Method TO-15 GC/MS SIM/Full Scan to achieve the required reporting limits for indoor air.

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

The OVH is located on the property adjacent to and downgradient of the service station 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.

### 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) on the basis of soil vapor probes at the adjacent service station property. Petroleum hydrocarbons were detected in soil vapor samples (AECOM 2013a; 2013b); therefore, additional sampling and vapor intrusion evaluations were performed. Rather than model predicted indoor air concentrations based on soil vapor concentrations some distance and depth away from the building, the additional sampling would collect soil vapor immediately below the slab (sub-slab) and collect indoor and outdoor air samples.

The objective of the sub-slab, indoor air, and outdoor sampling events is 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. This sampling was conducted during two different seasons to account for seasonal variability and indoor air sampling was conducted over a 24-hour period to account for daily variability.

### 3.2 Sampling Results

The sub-slab vapor, indoor air, and outdoor air sampling results from both the June 2014 and January 2015 sampling events are presented in **Tables 1** and **2**. The laboratory analytical reports for both events are attached as **Appendix D**. These data are discussed below.

#### 3.2.1 VOC Results

In June 2014, TPHg, BTEX, MTBE, and naphthalene were not detected above laboratory reporting limits in the sub-slab vapor or outdoor air samples. The June results indicated that hydrocarbon concentrations in indoor air were consistent with background and that hydrocarbon concentrations in sub-slab vapor and outdoor air were below detection limits. Indoor air analyses were conducted using a more sensitive test than outdoor and sub-slab analyses. In response to this result, the sampling and analytical methods were modified for the January sampling event to improve the comparability of the data.

The current vapor sampling results indicate that TPHg, BTEX, MTBE, and naphthalene were detected in indoor air samples at levels nearly identical to those observed in outdoor air. Sub slab soil vapor had some hydrocarbon detections at levels below reporting limits. Although results below reporting limits (J-flagged) are considered estimated concentrations, there is sufficient data to indicate that sub-slab vapor is less impacted than indoor or outdoor air.

#### 3.2.2 Quality Control Sample Results

QC samples for this event included a duplicate sample from SS-1 (SS-1-V-Y-20150118) and an equipment blank sample (EB-1-V-N-20150119). The primary and the duplicate sample agreed within 5% for all constituents tested. No constituents were detected in the equipment blank.

### 3.2.3 Laboratory Reporting Limits

Laboratory reporting limits (RLs) for TPHg, benzene, ethyl benzene, and naphthalene in sub-slab vapor samples collected during the January 2015 sampling event, analyzed by USEPA Method TO-15 Full scan, ranged from 3.4 to 460 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). Results between the RL and the method detection limit were also reported for this event. As a result, some values below the RL were reported as laboratory-estimated (J-flagged) concentrations.

Laboratory RLs for TPHg, benzene, ethyl benzene, and naphthalene in indoor air and outdoor air samples collected during the January 2015 sampling event, as a result of the analysis by the more sensitive USEPA Method Modified TO-15 APH (SIM), ranged from 0.66 to 460  $\mu\text{g}/\text{m}^3$ .

### 3.2.4 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.

### 3.2.5 Leak Detection

Helium was added 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 19.7 to 22.2% during sampling. Helium was not detected in the sub-slab sample (and the duplicate) and the equipment blank, with an RL of 0.11%. 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; thus, these results are considered not to be affected by leakage and are considered valid (New York State Department of Health 2006).

## 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 nearly identical to the concentrations for these constituents in outdoor air. Because of the shorter sample duration (8 hours) during the June 2014 event and the less sensitive method, no hydrocarbons were detected in the outdoor air sample. By extending the sample time (24 hours) and using the more sensitive (SIM) analytical method, the results of the January 2015 sampling event demonstrate the similarity between the indoor air at the OVH and outdoor air. Although the concentrations observed in indoor air in January are higher than those observed in June, they remain similar to published “background” concentrations reported in indoor air (USEPA 2011). With respect to the first criterion, the vapor intrusion pathway is not complete.

With respect to the second criterion, no hydrocarbons were detected in the sub-slab sample above their laboratory reporting limits in June 2014 and in January 2015. For the January event, reporting was requested for detections below the laboratory reporting limit, but above the method detection limit (J-flagged results). Method detection limits are generally 2 to 3 times lower than the method reporting limits and allow for a qualitative understanding of hydrocarbon concentrations in the sub-slab vapor. The analytes detected as J-flagged results (toluene and xylenes) were estimated at lower concentrations than those in indoor air suggesting that the constituents detected in indoor air are more likely to be arising from a source other than sub-slab vapor such as an indoor source(s) or ambient outdoor air. With respect to the second criterion, the vapor intrusion pathway is not complete.

### 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  $1 \times 10^{-6}$  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  $0.36 \mu\text{g}/\text{m}^3$  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  $0.36 \mu\text{g}/\text{m}^3$  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. One uncertainty that was addressed by the January 2015 sampling was uncertainty surrounding the seasonal variability of the result. By sampling the site 6 months after the initial sampling in a wet and colder season, the effect of these factors on air concentrations was addressed. Uncertainty related to RLS for outdoor air relative to indoor air CHHSLs was also addressed by using a longer sampling time and more sensitive analytical method. The following uncertainties remain, and 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).
- Laboratory RLS for benzene and naphthalene in sub-slab vapor samples collected during the June 2014 and January 2015 sampling events 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.

## 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 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. This work concluded that hydrocarbons detected in indoor air were consistent with reported residential background concentrations (USEPA 2011) and that TPHg, BTEX, and naphthalene were not detected in sub-slab vapor or outdoor air. Based on an estimation of the attenuation factor, the report stated that the vapor intrusion pathway was incomplete. However, the reporting limits for the sub-slab and outdoor air analyses made that determination inconclusive.

Sample duration and analytical method for the outdoor air sample were modified for the January 2015 sampling event. This allowed the direct comparison of indoor air results with outdoor air results. Indoor and outdoor air concentrations were nearly identical. The reporting of J-flagged results in the sub-slab sample indicated that hydrocarbon concentrations in sub-slab vapor were estimated to be lower than those in indoor air. These two findings indicate conclusively that the vapor intrusion pathway is incomplete.

Concentration of benzene detected in indoor air samples collected in the January sampling was above indoor air CHHSLs and RSLs. However, this concentration is consistent with reported residential background concentrations (USEPA 2011). Indoor air concentrations are nearly identical to those observed in outdoor air.

The current results, consistent with the June results, indicate that the vapor intrusion pathway is not complete. Based on the results of the second sampling event, ongoing monitoring is not recommended.

## 5.0 References

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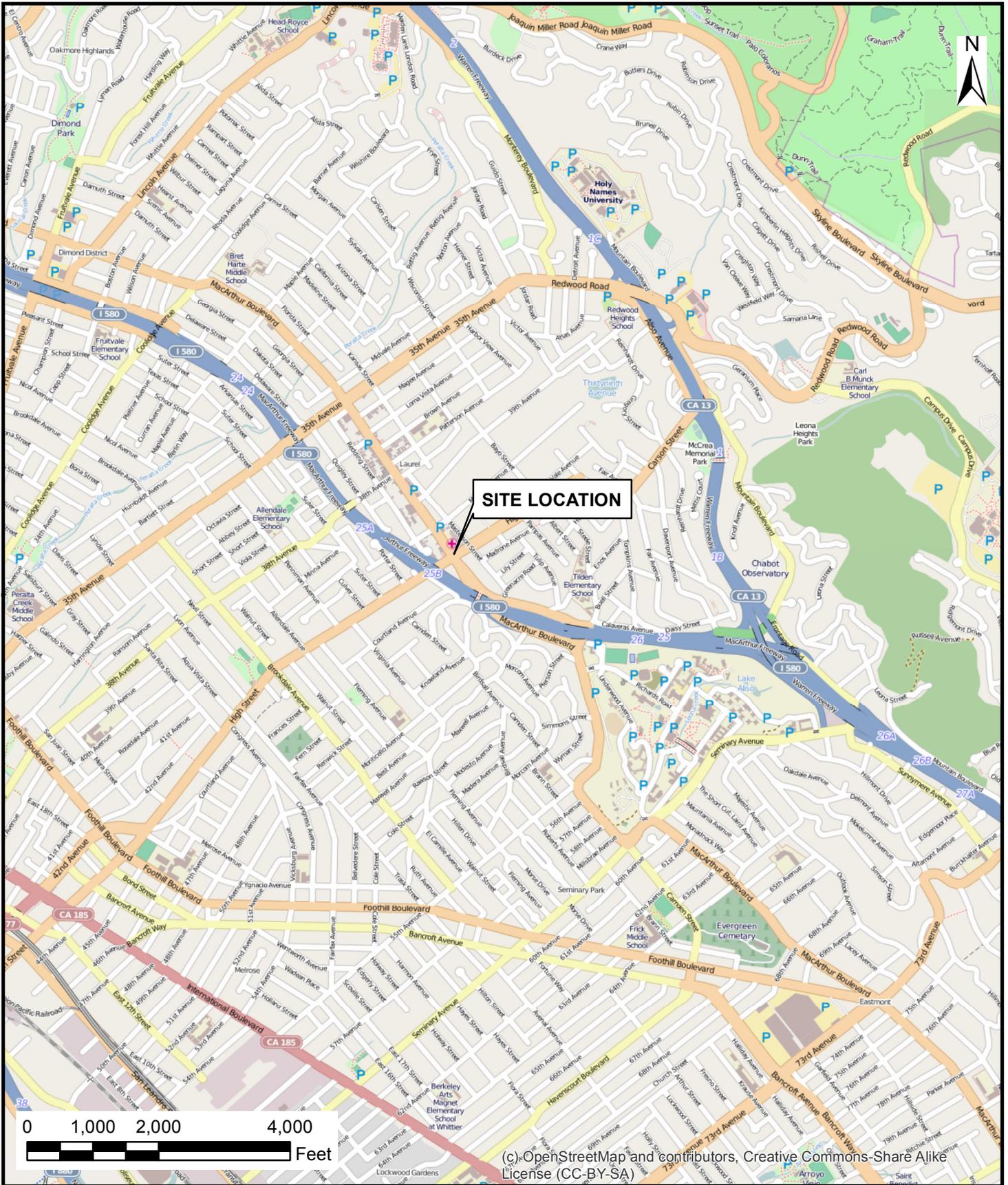
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———. 2014. Regional Screening Levels for Chemical Contaminants at Superfund Sites. [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table).

## Figures



(c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)



**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:  
 M. Scop

DATE:  
 02/10/2014

PROJECT NUMBER:  
 60313673

SHEET NUMBER:  
 1 of 1

FILENAME: J:\Client-Projects\76\_Products\351645-Oakland\7.0\_Deliverables\7.2\_CADD-Graphics\2014 2Q SVI Report\Figure 2 Site Plan\_2015Feb.dwg

**LEGEND**

- MW-11S  GROUNDWATER MONITORING WELL
- MW-8  ABANDONED GROUNDWATER MONITORING WELL
- TP-1  TANK PIT BACKFILL WELL
- SVW-6  SOIL VAPOR WELL
- SS-1  SUB-SLAB VAPOR PROBE
- IA-1  INDOOR AIR SAMPLE
- OA-1  OUTDOOR AIR SAMPLE
- SV-6  SOIL VAPOR SAMPLE LOCATION (DELTA, 2009)
-  STORM DRAIN
-  FENCE / BLOCK WALL



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

DESIGNED BY:	NO.:	DESCRIPTION:	DATE:	BY:
C. Roper				
DRAWN BY:				
M. Scop				
CHECKED BY:				
C. Roper				
APPROVED BY:				
C. Roper				

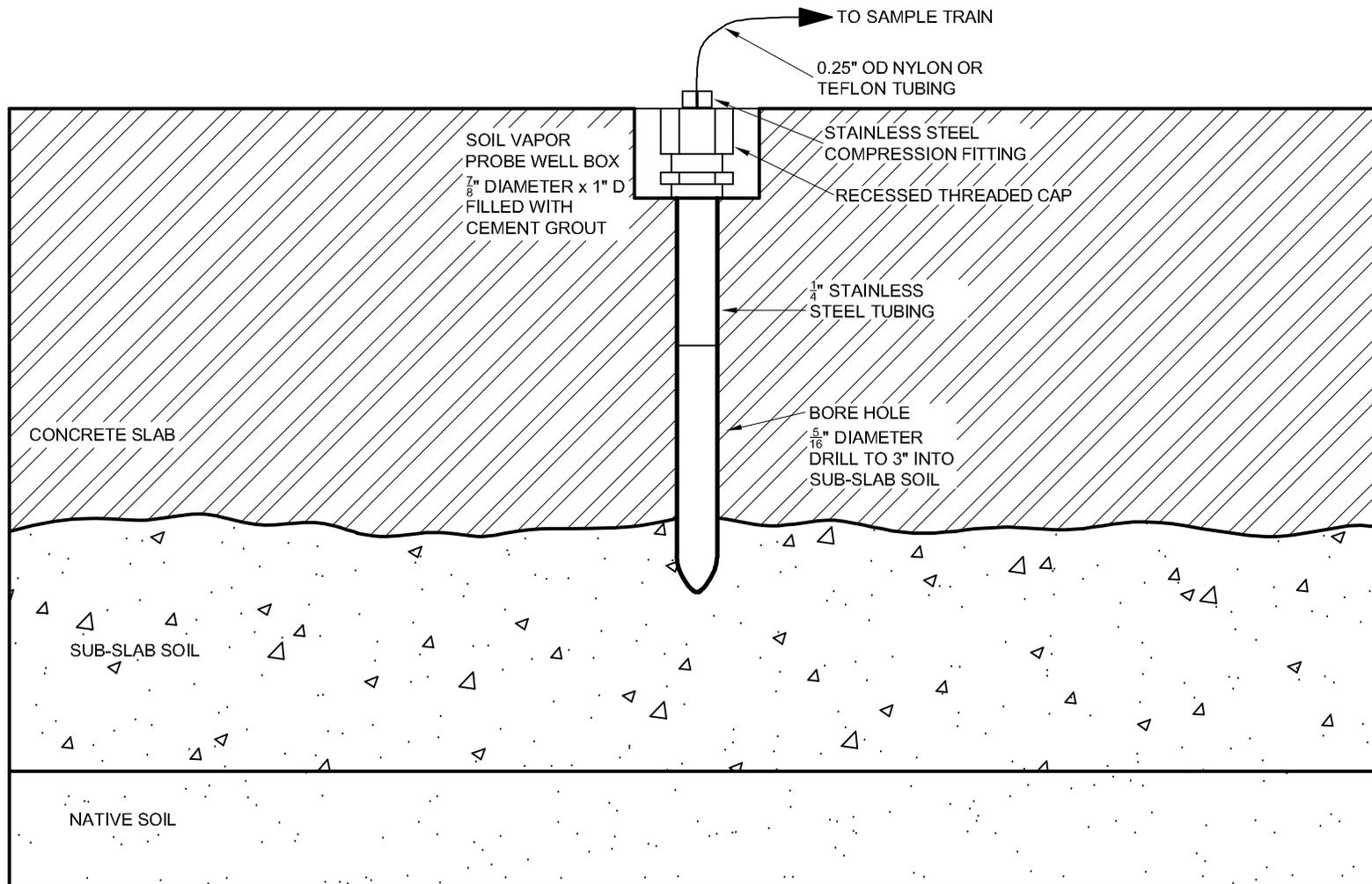
**AECOM**

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

**SITE PLAN WITH WELL AND SOIL VAPOR LOCATIONS**  
76 Service Station No. 1156 (351645)  
4276 MacArthur Boulevard  
Oakland, California

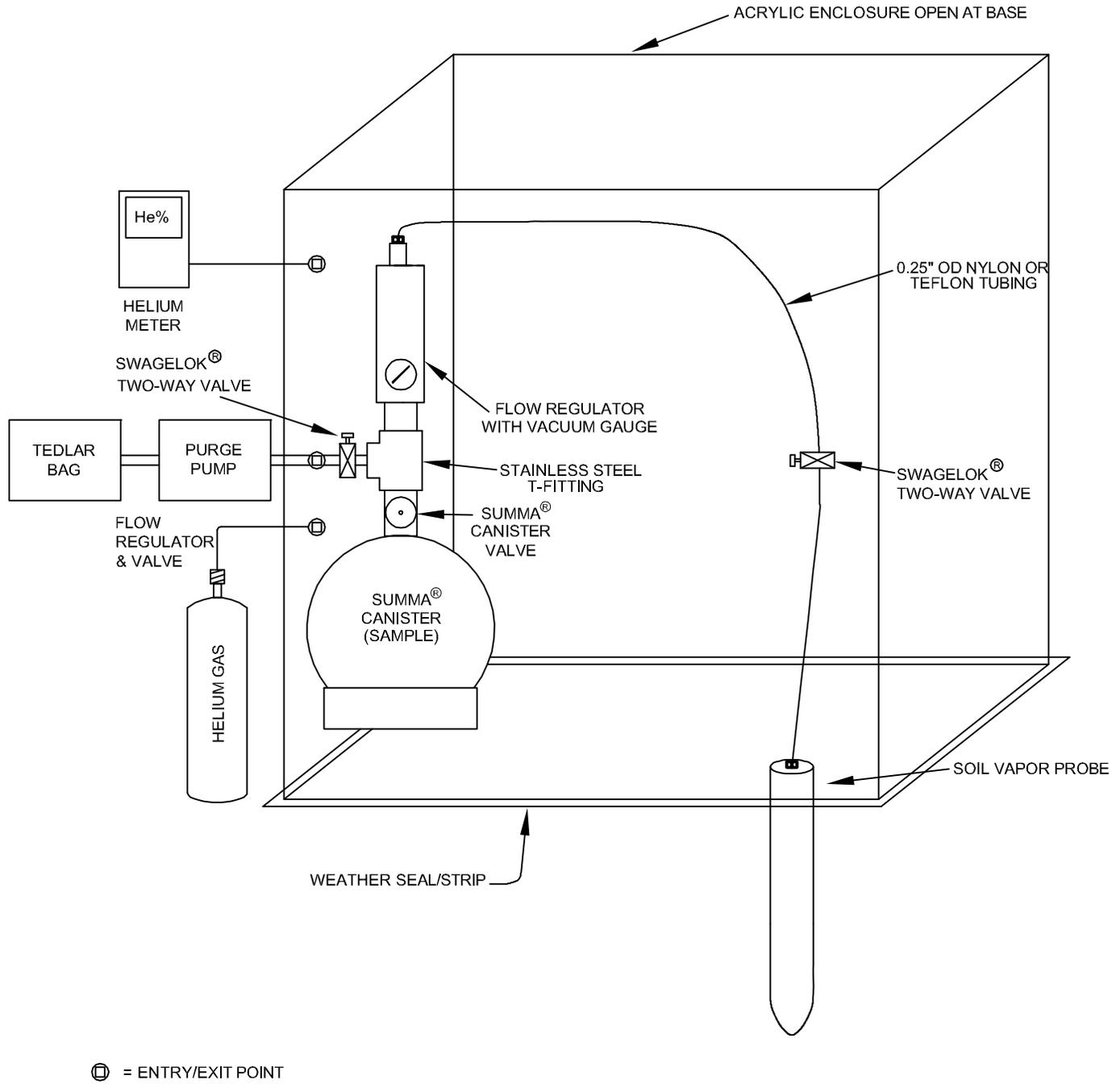
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DATE: 2/26/2015  
PROJECT NUMBER: 60338064-04.05

FIGURE NUMBER: <b>2</b>
SHEET NUMBER: X



 <b>AECOM</b> 1220 AVENIDA ACASO CAMARILLO, CALIFORNIA 93012 PHONE: (805) 388-3775 FAX: (805) 388-3577	<b>SUB-SLAB VAPOR PROBE DETAIL</b>		FIGURE NUMBER:
	76 Service Station No. 1156 (351645) 1823 North Main Street Walnut Creek, California		<b>3</b>
	DRAWN BY:	DATE:	PROJECT NUMBER:
M. Scop	7/21/2014	60316610 - 04.05	X

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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:

M. Scop

DATE:

7/21/2014

PROJECT NUMBER:

60316610 - 04.05

SHEET NUMBER:

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/m <sup>3</sup> )	(ppbv)	(µg/m <sup>3</sup> )	(ppbv)	(µg/m <sup>3</sup> )	(ppbv)	(µg/m <sup>3</sup> )	(ppbv)	(µg/m <sup>3</sup> )	(ppbv)	(µg/m <sup>3</sup> )	(ppbv)	(µg/m <sup>3</sup> )	(ppbv)	(µg/m <sup>3</sup> )	(ppbv)
<b>Sub-Slab Vapor CHHSLs (b)</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	
<b>Sub-Slab Vapor ESLs (d)</b>																	
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	
<b>Sub-slab Vapor Samples</b>																	
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
SS-1-V-N-20150118	1/18/2015	<460	<110	<3.6	<1.1	<b>1.2 J</b>	<b>0.31 J</b>	<4.9	<1.1	<b>0.99 J</b>	<b>0.23 J</b>	<b>1.7 J</b>	<b>0.40 J</b>	<4.0	<1.1	<23	<4.5
SS-1-V-Y-20150118 (DUP)	1/18/2015	<440	<110	<3.4	<1.1	<b>0.9 J</b>	<b>0.24 J</b>	<4.6	<1.1	<4.6	<1.1	<b>0.72 J</b>	<b>0.17 J</b>	<3.8	<1.1	<22	<4.3
<b>Indoor Air CHHSLs (a)</b>																	
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	
<b>Indoor Air ESLs (c)</b>																	
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	
<b>Indoor Air Samples</b>																	
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	0.037 J
IA-1-V-N-20150118	1/17-18/2015	<230	<56	1.4	0.44	4.4	1.2	0.76	0.17	0.95	0.22	2.4	0.56	<2.0	<0.56	<1.5	<0.28
IA-2-V-N-20150118	1/17-18/2015	<160	<39	1.2	0.37	4	1	0.74	0.17	0.88	0.2	2.4	0.56	<1.4	<0.39	<1.0	<0.20
<b>Outdoor Air Sample</b>																	
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
OA-1-V-N-20150118	1/17-18/2015	110	26	1.3	0.4	4.8	1.3	0.95	0.22	1.2	0.27	3.8	0.87	<0.66	<0.18	0.19 J	0.037 J
<b>Equipment Blank</b>																	
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
EB-1-V-N-20150119	1/19/2015	<460	<110	<3.6	<1.1	<4.2	<1.1	<4.9	<1.1	<4.9	<1.1	<4.9	<1.1	<4.0	<1.1	<24	<4.5

**Notes:**  
All analytes were analyzed by modified USEPA 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).  
ESL = Environmental Screening Levels.  
USEPA = United States Environmental Protection Agency. TPHg = Total Petroleum Hydrocarbons as gasoline.  
µg/m<sup>3</sup> = Micrograms per cubic meter. MTBE = Methyl tert-butyl ether.  
ppbv = Parts per billion by volume. NA = Not available.  
ID = Identification. <# = 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

<b>SAMPLE ID</b>	<b>DATE</b>	<b>OXYGEN (%)</b>	<b>METHANE (%)</b>	<b>CARBON DIOXIDE (%)</b>	<b>HELIUM (%)</b>	<b>NITROGEN (%)</b>
<b><u>Sub-slab Vapor Samples</u></b>						
<b>SS-1-V-N-20140608</b>	6/8/2014	21	<0.00021	0.040	<0.11	79
<b>SS-1-V-Y-20140608 (DUP)</b>	6/8/2014	21	<0.00022	0.022	<0.11	79
<b>SS-1-V-N-20150118</b>	1/18/2015	20	<0.00022	0.051	<0.11	80
<b>SS-1-V-Y-20150118 (DUP)</b>	1/18/2015	21	<0.00022	0.052	<0.11	79
<b><u>Equipment Blank</u></b>						
<b>EB-1-20140608</b>	6/8/2014	0.55	<0.00021	<0.021	<0.11	99
<b>EB-1-V-N-20150119</b>	1/19/2015	0.87	<0.00022	<0.022	<0.11	99

**Notes:**

ID = Identification.

(%) = Percentage of gas detected in sample canister by modified ASTM Method D-1946.

<# = Gas not detected at or above indicated laboratory reporting limit.

## **Appendix A**

### **ACEH Correspondence**



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

November 19, 2014

Nicole Arceneaux  
Chevron Environmental Management Company  
6101 Bollinger Canyon Road  
San Ramon, CA 94583

Ed Ralston  
Phillips 66 Company  
76 Broadway  
Sacramento, CA 95818

(Sent via E-mail to:

[nicole.arceneaux@Chevron.com](mailto:nicole.arceneaux@Chevron.com))

(Sent via E-mail to: [Ed.C.Ralston@p66.com](mailto:Ed.C.Ralston@p66.com))

Rajan Goswamy  
4276 MacArthur Boulevard  
Oakland, CA 94619

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

(Sent via E-mail to: [rajgoswamy@sbcglobal.net](mailto:rajgoswamy@sbcglobal.net))

Subject: Case File Review 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. Mudgett, and Mr. Goswamy:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above-referenced site, including the documents entitled, "Report on Sub-Slab, Indoor Air, and Outdoor Air Sampling and Vapor Intrusion Evaluation for the Oakland Veterinary Hospital Located at 4258 MacArthur Boulevard, Oakland, California," dated July 21, 2014 (Vapor Intrusion Report) "Monitoring well Installation Report," dated July 25, 2014 (Monitoring Well Installation Report), and "Third Quarter 2014 Semiannual Groundwater Monitoring and Sampling Report," dated October 7, 2014 (Monitoring Report). Based on our review of the case file, we have the following technical comments. We request that you address the technical comments and submit the reports requested below.

## **TECHNICAL COMMENTS**

- 1. Vapor Intrusion Evaluation.** The Vapor Intrusion Report indicates that the second late-summer sub-slab, indoor air, and outdoor air sampling event would be implemented to provide insight into sampling variability as requested in our January 27, 2014 correspondence. To date, we have not received the results of the late-summer sampling event. We request that you submit the results of the second sampling event in a Vapor Intrusion Evaluation Report no later than December 19, 2014.
- 2. Evaluation of Remedial Technologies.** The Monitoring Well Installation Report describes soil sampling and well installation results for shallow monitoring wells MW-10S and MW-11S. ACEH previously requested that site assessment activities be focused on evaluation of remedial technologies particularly to address the on-site and off-site contamination along the northwestern property boundary adjacent to the Oakland Veterinary Hospital. In our March 19, 2014 correspondence, ACEH conditionally approved the proposed well installation to keep the project moving forward but indicated that additional work will be required to evaluate remedial technologies. We also did not concur with the conclusion that multi-phase extraction (MPE) is likely not a feasible technology. We request that you conduct further evaluation including data collection and pilot testing to evaluate remedial technologies. Please submit a Work Plan to evaluate remedial technologies no later than January 31, 2015.

3. **Groundwater Sampling.** Groundwater monitoring is to be continued on a semiannual basis. Please present the results in the reports requested below.

### **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:

- **December 19, 2014** – Vapor Intrusion Evaluation Report – Second Sampling Event  
File to be named: SWI\_R\_yyyy-mm-dd RO409
- **January 31, 2015** – Work Plan to Evaluate Remedial Technologies  
File to be named: WP\_R\_yyyy-mm-dd RO409
- **March 30, 2015** – Semi-Annual Groundwater Monitoring Report  
File to be named: GWM\_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](mailto: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

Responsible Parties  
RO0000409  
November 19, 2014  
Page 3

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](mailto:lgriffin@oaklandnet.com)*)

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

Chad Roper, AECOM, 1220 Avenida Acaso, Camarillo, CA 93012 (*Sent via E-mail to: [chad.roper@aecom.com](mailto:chad.roper@aecom.com)*)

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

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

Jerry Wickham, ACEH (*Sent via E-mail to: [jerry.wickham@acgov.org](mailto:jerry.wickham@acgov.org)*)  
GeoTracker, e-File

## Attachment 1

### Responsible Party(ies) Legal Requirements / Obligations

#### REPORT REQUESTS

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.

#### ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements ([http://www.waterboards.ca.gov/water\\_issues/programs/ust/electronic\\_submittal/](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, 6835, 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, later 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.

<b>Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)</b>	<b>REVISION DATE:</b> May 15, 2014
	<b>ISSUE DATE:</b> July 5, 2005
	<b>PREVIOUS REVISIONS:</b> October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010
<b>SECTION:</b> Miscellaneous Administrative Topics & Procedures	<b>SUBJECT:</b> Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) 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 [deh.loptoxic@acgov.org](mailto:deh.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 <ftp://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 [deh.loptoxic@acgov.org](mailto:deh.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.



Nicole Arceneaux  
Project Manager  
Marketing Business Unit

**Chevron Environmental  
Management Company**  
6101 Bollinger Canyon Road  
San Ramon, CA 94583  
Tel (925) 790-6612  
Nicole.arceneaux@chevron.com

November 24, 2014

Mr. Jerry Wickham, PG, CEG, CHG  
Senior Hazardous Materials Specialist  
Alameda County Health Care Services Agency  
Environmental Health Services  
Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

**Subject: Request for Due Date Extension for Vapor Intrusion Evaluation Report – Second Sampling Event  
Chevron Facility No. 351645 (Former Unocal Service Station No. 1156)  
4276 MacArthur Boulevard, Oakland, California**

**Re: ACEH Fuel Leak Case No. RO0000409  
RWQCB Case No. 01-2474  
GeoTracker Global ID T0600102279**

Mr. Wickham:

In response to your letter dated November 19, 2014 (see attached), we are requesting an extension to the December 19, 2014 due date for the Vapor Intrusion Evaluation Report – Second Sampling. In order to have a greater difference in the prevailing weather conditions from the first sampling (June), we delayed our second sampling beyond the ‘late summer’ that we referred to in our report dated July 21, 2014.

The sub-slab vapor, indoor air, and outdoor air sampling at the Oakland Veterinary Hospital (adjacent to the above-referenced subject site) has been scheduled for January 17<sup>th</sup> and 18<sup>th</sup>, 2015. Based on this sampling date and the schedule for laboratory analysis and reporting provided below (and consistent with the schedule we provided for the previous report), we request that the report be due March 1, 2015.

<b>Estimated Time Duration</b>	<b>Activity</b>
2 days (in the field)	Perform sub-slab vapor, indoor air, and outdoor air sampling
14 days (from date of sample collection)	Laboratory analysis of vapor and air samples
4 weeks (from receipt of laboratory data)	Prepare and submit vapor intrusion report

Please feel free to contact me if you have any questions.

Sincerely,

Nicole Arceneaux



Project Manager

cc: Mr. Rajan Goswamy, Property Owner (*via email*)  
Dr. Maureen Dorsey, Adjacent Property Owner (*via email*)

**From:** [Wickham, Jerry, Env. Health](#)  
**To:** [Arceneaux, Nicole Marie](#); [Roper, Chad](#)  
**Subject:** RO409 Schedule extension for Vapor Intrusion Evaluation Report - Second Sampling Event  
**Date:** Tuesday, December 02, 2014 2:38:22 PM

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Nicole,

Based upon the request and proposed schedule in your correspondence dated November 24, 2014, the schedule for submittal of the Vapor Intrusion Evaluation Report – Second Sampling Event for the Oakland Veterinary Hospital is extended to March 1, 2015.

Regards,  
Jerry Wickham  
Alameda County Environmental Health  
1131 Harbor Bay Parkway  
Alameda, CA 94502  
510-567-6791  
[Jerry.wickham@acgov.org](mailto:Jerry.wickham@acgov.org)

## **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

Carboline 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%

Diocetyl 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 glycol #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**

## REPORT OF FIELD OBSERVATIONS

Job No: 351645	Date: 1-17-15	M	T	W	T	F	(S)	S
Client: Chevron	Project: Subslab sampling							
Location: Oakland, CA	Weather:							
Observer: Jim Harms	Observation Period:							

**Description:**

0930 ~~1000~~ Load equipment  
~~1030~~ to Oakland 1300 at home depot for supplies  
 1330 JH on site  
 1340 Review T+IA  
 1350 Set-up outdoor air sample, purge tubing  
 1430 start outdoor sample  
 1445 Set-up indoor samples  
 1530 JH off site  
 1600 to lodging

Mileage:	miles	Continued on Next Page	Page 1 of /
Copy Sent To Client:	Y N		

## REPORT OF FIELD OBSERVATIONS

Job No: <del>3065</del> 351645	Date: 1-18-15	M	T	W	T	F	S	(S)
Client: Chevron	Project: Subslab sampling							
Location: Oakland CA	Weather:							
Observer: Jim Harms	Observation Period:							

Description:

0630 to site

0850 on site

0900 setup for JH subslab sample

1130 leave site

1230 Back to site

1450 turn off samples

1510 JH off site

1700 JH arrive in Sacramento

Mileage:	_____ miles
Copy Sent To Client: Y N	Continued on Next Page Page 1 of 1

Soil Vapor Sample Collection Data



Client: Chevron

Date 1-17-15

Project Number: ~~306~~ 351645

Site Location: 4276 MacArthur Blvd, Oakland CA

2020 L Street ste 400  
Sacramento, CA 95811

Field Personnel: Jim Harms

Sample Data					
Sample ID	0A-1		1A-1		1A-2
Canister Serial No.	33908		5111		33351
Flow Controller Serial No.	40418		5- <del>94</del> <sup>JM</sup> 40994		<del>5533</del> <sup>JM</sup> 40487
Sample Height (FT)	6'		4.7'		4.8'
Tubing length	12'		0'		0'
Purge Volume and Rate	<del>37</del> 66 → 166/min 19 SEC 24 SEC		0		—
Initial Canister Vacuum (inches Hg)	-30		-30		-29.5
Time Canister Opened	1430		<sup>JM</sup> 1500/1450		<sup>JM</sup> 1500/1450
30 min.	-29.5		-29		-29.3
1020 min.	-12.5		-12		-10.5
1140 min.	-11.5		-11.5		-9.5
1410 min.	-8.5		<sup>JM</sup> -8 -7		-5.0
1440 min.	-8		-6.5		-4.5
1805 min.	-7				
__ min.					
__ min.					
__ min.					
__ min.					
__ min.					
__ min.					
__ min.					
__ min.					
__ min.					
__ min.					
__ min.					
Comments					
Time Canister Closed	1458		1450		1450
Final Canister Pressure (inches Hg)	-7		-6.5		-4.5
Time of Sample Collection	1458		1450		1450

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

Soil Vapor Sample Collection Data



2020 L Street suite 400  
Sacramento, CA 95811

Client Chevron  
Project Number: 306578  
Site Location: 4276 MacArthur Blvd, Oakland, CA  
Field Personnel: Jim Harms  
Subslab probe,

Date 1-18-15

Sample Data		Purge		10-Minute Leak Test		Sample Collection and Tracer Gas Monitoring	
Sample ID	55-1						
Canister Serial No.	34658	55-1D				EB-1	
Flow Controller Serial No.	30988	33645				12388	
Sample Depth (Ft.)	slab	30558				20106	
Tubing length	0'	slab				-	
Purge Volume and Rate		4'				1'	
Calculated Duration of Purge (3 tubing volumes)	38 @ 166ml/min = 0.2 min					-	
Time Sample-Train Leak Test Begins	12:50 pm ~ 36 sec					-	
Initial Canister Vacuum (inches Hg)	0915					1155	
Time Sample-Train Leak Test Ends	-29.5					-25	
Duration of Leak Test	→ 10 min					1205	
Final Canister Vacuum (inches Hg)	-29.5					10 min	
Time Beginning of Purge	0958					-25	
Time End of Purge	0959					-	
Actual Duration of Purge	30 sec					-	
Initial Canister Vacuum (inches Hg)	-30					-29.5	
Time Canister Operated	1005					1207	
Measured Helium % initial	22.2						
2 min.	22.1						
4 min.	24.3						
6 min.	20.4						
8 min.	19.9						
10 min.	19.7						
15 min.							
20 min.							
25 min.							
30 min.							
Comments							
Time Canister Closed	1015					1212	
Final Canister Pressure (inches Hg)	-4.0					-3.5	
Time of Sample Collection	1015					1212	

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



Report results to:  
 Name  
 Company  
 Mailing Address  
 City, State, Zip  
 Telephone No.  
 Fax No.

Chad Roper (chad.ropер@aecom.com)  
 AECOM  
 1220 Avenida Acaso  
 Camarillo, CA 93012  
 805.388.3775  
 805.388.3577

Special instructions and/or specific regulatory requirements:  
 report results in micrograms per cubic meter

Sample Identification	Date Sampled	Time Sampled	Can #
SS-1-V-N-201501xx 18	1-18-15	11:15 AM	34658
SS-1-V-Y-201501xx 18	1-18-15	11:15 AM	33645
EB-1-V-N-201501xx 19	1-19-15	11:12 AM	12388
IA-1-V-N-201501xx 18	1-18-15	11:15 AM	5411
IA-2-V-N-201501xx 18	1-18-15	11:15 AM	33381
OA-1-V-N-201501xx 18	1-18-15	11:55 AM	33908

CO2, He, N2, O2, CH4 - ASTM D-1946 mod

TPHg, BTEX, MTBE, Naph by  
 Modified TO-15 Fractions (Sp)  
 Full list+Nap+APH

TPHg, BTEX, MTBE, Naph by  
 Modified TO-15 H/LLo - VOCs by  
 GC/MS SIM/Full Scan Modified TO-  
 15 H/LLo (SP)-BTEX, MTBE < Naph  
 & TPHg (Naph @ SIM 0.05)

Sample Identification	Date	Time	Can #	Initial	Final	Initial	Final	Initial	Final	Comments
SS-1-V-N-201501xx 18	1-18-15	11:15 AM	34658	X	-36	X	-4			
SS-1-V-Y-201501xx 18	1-18-15	11:15 AM	33645	X	-38	X	-3.5			
EB-1-V-N-201501xx 19	1-19-15	11:12 AM	12388	X	-29.5	X	-3.5			
IA-1-V-N-201501xx 18	1-18-15	11:15 AM	5411	X	-38	X	-6.5			
IA-2-V-N-201501xx 18	1-18-15	11:15 AM	33381	X	-21.5	X	-4.5			
OA-1-V-N-201501xx 18	1-18-15	11:55 AM	33908	X	-30	X	-7			

Relinquished by: [Signature] Date/Time 1/19/15  
 Relinquished by: [Signature] Date/Time 1/19/15  
 Received by: [Signature] Date/Time 1/19/15  
 Received by: [Signature] Date/Time 1/19/15  
 Sample Condition on Rcpt: \_\_\_\_\_  
 Hand Delivery \_\_\_\_\_

Project Information  
 Chevron Facility: 351645  
 Site Address: 4276 MacArthur Blvd, Oakland CA  
 AECOM No. 60316610-07-11  
 PO No. 54253ACM

Lab: Eurofins Air Toxics  
 TAT: Standard

CHAIN OF CUSTODY

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

# Certificate of Calibration

<b>EQUIPMENT/MODEL</b>	<b>DESCRIPTION</b>	<b>SERIAL NUMBER</b>
<b>DIELECTRIC TECH/MGD-2002</b>	<b>HELIUM DETECTOR</b>	<b>041497</b>

**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**  
**1/15/15**

**Calibration Gas**  
**TESTED**

**Tech**  
**Jeff**

**EnviroSupply**



**Service**  
**INC.**

**[www.envirosupply.net](http://www.envirosupply.net)**

**1-800-201-8150**



## **Appendix D**

### **Laboratory Analytical Reports**

1/30/2015

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

Project Name: 351645  
Project #:  
Workorder #: 1501211A

Dear Mr. Jim Harms

The following report includes the data for the above referenced project for sample(s) received on 1/19/2015 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

**WORK ORDER #: 1501211A**

Work Order Summary

<b>CLIENT:</b>	Mr. Jim Harms AECOM Environment 2020 L Street 4th Floor Suite 400 Sacramento, CA 95811	<b>BILL TO:</b>	Accounts Payable Camarillo AECOM Environment 1220 Avenida Acaso Camarillo, CA 93012
<b>PHONE:</b>	916-362-7100	<b>P.O. #</b>	54253ACM
<b>FAX:</b>	916-362-8100	<b>PROJECT #</b>	351645
<b>DATE RECEIVED:</b>	01/19/2015	<b>CONTACT:</b>	Kelly Buettner
<b>DATE COMPLETED:</b>	01/30/2015		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
04A	IA-1-V-N-20150118	Modified TO-15	6.1 "Hg	5 psi
04B	IA-1-V-N-20150118	Modified TO-15	6.1 "Hg	5 psi
05A	IA-2-V-N-20150118	Modified TO-15	3.9 "Hg	5.4 psi
05B	IA-2-V-N-20150118	Modified TO-15	3.9 "Hg	5.4 psi
06A	OA-1-V-N-20150118	Modified TO-15	8.4 "Hg	4.8 psi
06B	OA-1-V-N-20150118	Modified TO-15	8.4 "Hg	4.8 psi
07A	Lab Blank	Modified TO-15	NA	NA
07B	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
08B	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA
09B	LCS	Modified TO-15	NA	NA
09BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 01/30/15

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

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

**LABORATORY NARRATIVE**  
**Modified TO-15 Full Scan/SIM**  
**AECOM Environment**  
**Workorder# 1501211A**

Three 6 Liter Summa Canister (SIM Certified) samples were received on January 20, 2015. 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.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	$\leq 30\%$ 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 $\leq 30\%$ RSD with 10% of compounds allowed out to $< 40\%$ RSD
Daily Calibration	$\pm 30\%$ Difference	For Full Scan: $\leq 30\%$ Difference with four allowed out up to $\leq 40\%$ .; flag and narrate outliers  For SIM: Project specific; default criteria is $\leq 30\%$ Difference with 10% of compounds allowed out up to $\leq 40\%$ .; 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

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

**Client Sample ID: IA-1-V-N-20150118**

**Lab ID#: 1501211A-04A**

No Detections Were Found.

**Client Sample ID: IA-1-V-N-20150118**

**Lab ID#: 1501211A-04B**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	0.28	0.44	0.89	1.4
Toluene	0.11	1.2	0.42	4.4
Ethyl Benzene	0.11	0.17	0.49	0.76
m,p-Xylene	0.22	0.56	0.97	2.4
o-Xylene	0.11	0.22	0.49	0.95

**Client Sample ID: IA-2-V-N-20150118**

**Lab ID#: 1501211A-05A**

No Detections Were Found.

**Client Sample ID: IA-2-V-N-20150118**

**Lab ID#: 1501211A-05B**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	0.20	0.37	0.63	1.2
Toluene	0.079	1.0	0.30	4.0
Ethyl Benzene	0.079	0.17	0.34	0.74
m,p-Xylene	0.16	0.56	0.68	2.4
o-Xylene	0.079	0.20	0.34	0.88

**Client Sample ID: OA-1-V-N-20150118**

**Lab ID#: 1501211A-06A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
TPH ref. to Gasoline (MW=100)	18	26	75	110

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

**Client Sample ID: OA-1-V-N-20150118**

**Lab ID#: 1501211A-06B**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.092	0.40	0.29	1.3
Toluene	0.037	1.3	0.14	4.8
Ethyl Benzene	0.037	0.22	0.16	0.95
m,p-Xylene	0.074	0.87	0.32	3.8
o-Xylene	0.037	0.27	0.16	1.2
Naphthalene	0.092	0.037 J	0.48	0.19 J



Air Toxics

Client Sample ID: IA-1-V-N-20150118

Lab ID#: 1501211A-04A

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

File Name:	v012109	Date of Collection:	1/18/15 2:50:00 PM	
Dil. Factor:	5.60	Date of Analysis:	1/21/15 02:30 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH ref. to Gasoline (MW=100)	56	Not Detected	230	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: IA-1-V-N-20150118

Lab ID#: 1501211A-04B

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

File Name:	v012109sim	Date of Collection:	1/18/15 2:50:00 PM
Dil. Factor:	5.60	Date of Analysis:	1/21/15 02:30 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.56	Not Detected	2.0	Not Detected
Benzene	0.28	0.44	0.89	1.4
Toluene	0.11	1.2	0.42	4.4
Ethyl Benzene	0.11	0.17	0.49	0.76
m,p-Xylene	0.22	0.56	0.97	2.4
o-Xylene	0.11	0.22	0.49	0.95
Naphthalene	0.28	Not Detected	1.5	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: IA-2-V-N-20150118

Lab ID#: 1501211A-05A

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

File Name:	v012110	Date of Collection:	1/18/15 2:50:00 PM	
Dil. Factor:	3.93	Date of Analysis:	1/21/15 03:15 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH ref. to Gasoline (MW=100)	39	Not Detected	160	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: IA-2-V-N-20150118

Lab ID#: 1501211A-05B

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

File Name:	v012110sim	Date of Collection:	1/18/15 2:50:00 PM
Dil. Factor:	3.93	Date of Analysis:	1/21/15 03:15 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.39	Not Detected	1.4	Not Detected
Benzene	0.20	0.37	0.63	1.2
Toluene	0.079	1.0	0.30	4.0
Ethyl Benzene	0.079	0.17	0.34	0.74
m,p-Xylene	0.16	0.56	0.68	2.4
o-Xylene	0.079	0.20	0.34	0.88
Naphthalene	0.20	Not Detected	1.0	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: OA-1-V-N-20150118

Lab ID#: 1501211A-06A

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

File Name:	v012111	Date of Collection:	1/18/15 2:55:00 PM	
Dil. Factor:	1.84	Date of Analysis:	1/21/15 04:09 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH ref. to Gasoline (MW=100)	18	26	75	110

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: OA-1-V-N-20150118

Lab ID#: 1501211A-06B

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

File Name:	v012111sim	Date of Collection:	1/18/15 2:55:00 PM
Dil. Factor:	1.84	Date of Analysis:	1/21/15 04:09 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.18	Not Detected	0.66	Not Detected
Benzene	0.092	0.40	0.29	1.3
Toluene	0.037	1.3	0.14	4.8
Ethyl Benzene	0.037	0.22	0.16	0.95
m,p-Xylene	0.074	0.87	0.32	3.8
o-Xylene	0.037	0.27	0.16	1.2
Naphthalene	0.092	0.037 J	0.48	0.19 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	107	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1501211A-07A

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

File Name:	v012108	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/21/15 12:29 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	95	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	107	70-130



Client Sample ID: Lab Blank

Lab ID#: 1501211A-07B

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

File Name:	v012108sima	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/21/15 12:29 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	0.0076 J	0.16	0.024 J
Toluene	0.020	0.0054 J	0.075	0.020 J
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	0.0024 J	0.17	0.010 J
o-Xylene	0.020	Not Detected	0.087	Not Detected
Naphthalene	0.050	Not Detected	0.26	Not Detected

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	109	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1501211A-08A

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

File Name:	v012102	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/21/15 07:48 AM

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

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	112	70-130

Client Sample ID: CCV

Lab ID#: 1501211A-08B

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

File Name:	v012102sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/21/15 07:48 AM

Compound	%Recovery
Methyl tert-butyl ether	80
Benzene	75
Toluene	87
Ethyl Benzene	91
m,p-Xylene	91
o-Xylene	92
Naphthalene	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	118	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1501211A-09A

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

File Name:	v012103	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/21/15 08:37 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	93	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1501211A-09AA

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

File Name:	v012104	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/21/15 09:18 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	92	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1501211A-09B

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

<b>File Name:</b>	<b>v012103sim</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 1/21/15 08:37 AM</b>

<b>Compound</b>	<b>%Recovery</b>	<b>Method Limits</b>
Methyl tert-butyl ether	81	70-130
Benzene	78	70-130
Toluene	89	70-130
Ethyl Benzene	92	70-130
m,p-Xylene	92	70-130
o-Xylene	90	70-130
Naphthalene	76	60-140

**Container Type: NA - Not Applicable**

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	116	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1501211A-09BB

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

File Name:	v012104sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/21/15 09:18 AM

Compound	%Recovery	Method Limits
Methyl tert-butyl ether	81	70-130
Benzene	78	70-130
Toluene	89	70-130
Ethyl Benzene	94	70-130
m,p-Xylene	95	70-130
o-Xylene	95	70-130
Naphthalene	73	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	118	70-130

# CHAIN OF CUSTODY



Lab: Eurofins Air Toxics

TAT: Standard

**Report results to:**

Name: Chad Roper (chad.roper@aecom.com)  
 Company: AECOM  
 Mailing Address: 1220 Avenida Acaso  
 City, State, Zip: Camarillo, CA 93012  
 Telephone No.: 805.388.3775  
 Fax No.: 805.388.3577

**Project Information**

Chevron Facility: 351645  
 Site Address: 4276 MacArthur Blvd, Oakland CA  
 AECOM No.: 60316610-07-11 JH  
 PO No.: 54253ACM JH

Special instructions and/or specific regulatory requirements:

report results in micrograms per cubic meter

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				Comments
							Initial	Final	Initial	Final	
SS-1-V-N-201501 <sup>JH</sup> xx 18	1-18-15	<del>1-18-15</del> 1015	34658	X	X <sup>JH</sup>	X	-36	-4			
SS-1-V-Y-201501 <sup>JH</sup> xx 18	1-18-15	<del>1-18-15</del> 1415	33645	X	X <sup>JH</sup>	X	-30	-3.9			
EB-1-V-N-201501 <sup>JH</sup> xx 19	1-19-15	<del>1-19-15</del> 1212	12388	X	X <sup>JH</sup>	X	-29.5	-3.5			
IA-1-V-N-201501 <sup>JH</sup> xx 18	1-18-15	<del>1-18-15</del> 1450	5411			X	<del>-30</del>	-6.5			
IA-2-V-N-201501 <sup>JH</sup> xx 18	1-18-15	<del>1-18-15</del> 1450	33381			X	-29.5	-4.5			
OA-1-V-N-201501 <sup>JH</sup> xx 18	1-18-15	1455	33908		X <sup>JH</sup>	X	-30	-7			

Relinquished by: [Signature] Date/Time 1/19/15 1217  
 Relinquished by: \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Method of Shipment: Hand Delivery

Received by: [Signature] Date/Time 1/19/15 1217  
 Received by: \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Sample Condition on Rcpt: Good

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

1501211

2/10/2015

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

Project Name: 351645  
Project #:  
Workorder #: 1501211BR1

Dear Mr. Jim Harms

The following report includes the data for the above referenced project for sample(s) received on 1/19/2015 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

**WORK ORDER #: 1501211BR1**

Work Order Summary

<b>CLIENT:</b>	Mr. Jim Harms AECOM Environment 2020 L Street 4th Floor Suite 400 Sacramento, CA 95811	<b>BILL TO:</b>	Accounts Payable Camarillo AECOM Environment 1220 Avenida Acaso Camarillo, CA 93012
<b>PHONE:</b>	916-362-7100	<b>P.O. #</b>	54253ACM
<b>FAX:</b>	916-362-8100	<b>PROJECT #</b>	351645
<b>DATE RECEIVED:</b>	01/19/2015	<b>CONTACT:</b>	Kelly Buettner
<b>DATE COMPLETED:</b>	01/26/2015		
<b>DATE REISSUED:</b>	02/10/2015		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SS-1-V-N-20150118	TO-15	3.1 "Hg	14.9 psi
02A	SS-1-V-Y-20150118	TO-15	2 "Hg	14.7 psi
03A	EB-1-V-N-20150119	TO-15	3.3 "Hg	14.8 psi
04A	Lab Blank	TO-15	NA	NA
05A	CCV	TO-15	NA	NA
06A	LCS	TO-15	NA	NA
06AA	LCSD	TO-15	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 02/10/15

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

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# 1501211BR1**

Three 1 Liter Summa Canister (100% Certified) samples were received on January 19, 2015. 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.

Due to laboratory error, the workorder was reissued on February 10, 2015 for the following reasons:

To report estimated values for target compound hits that are below the reporting limit but greater than the method detection limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

To amend the report format to landscape style.

**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

EPA METHOD TO-15 GC/MS FULL SCAN  
351645

<b>Client ID:</b>	SS-1-V-N-20150118	<b>Date/Time Analyzed:</b>	1/22/15 05:11 PM
<b>Lab ID:</b>	1501211BR1-01A	<b>Dilution Factor:</b>	2.24
<b>Date/Time Collected:</b>	1/18/15 10:15 AM	<b>Instrument/Filename:</b>	msd3.i / 3012215r1
<b>Media:</b>	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	1.0	2.7	3.6	Not Detected
Ethyl Benzene	100-41-4	0.70	3.7	4.9	Not Detected
m,p-Xylene	108-38-3	0.60	3.7	4.9	1.7 J
Methyl tert-butyl ether	1634-04-4	1.0	3.1	4.0	Not Detected
Naphthalene	91-20-3	0.95	10	23	Not Detected
o-Xylene	95-47-6	0.81	3.7	4.9	0.99 J
Toluene	108-88-3	0.74	3.2	4.2	1.2 J
TPH ref. to Gasoline (MW=100)	9999-9999-038	NA	D	460	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN  
351645

<b>Client ID:</b>	SS-1-V-Y-20150118	<b>Date/Time Analyzed:</b>	1/22/15 05:37 PM
<b>Lab ID:</b>	1501211BR1-02A	<b>Dilution Factor:</b>	2.14
<b>Date/Time Collected:</b>	1/18/15 10:15 AM	<b>Instrument/Filename:</b>	msd3.i / 3012216r1
<b>Media:</b>	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.96	2.6	3.4	Not Detected
Ethyl Benzene	100-41-4	0.67	3.5	4.6	Not Detected
m,p-Xylene	108-38-3	0.58	3.5	4.6	0.72 J
Methyl tert-butyl ether	1634-04-4	0.97	2.9	3.8	Not Detected
Naphthalene	91-20-3	0.90	10	22	Not Detected
o-Xylene	95-47-6	0.78	3.5	4.6	Not Detected
Toluene	108-88-3	0.70	3.1	4.0	0.90 J
TPH ref. to Gasoline (MW=100)	9999-9999-038	NA	D	440	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN  
351645

<b>Client ID:</b>	EB-1-V-N-20150119	<b>Date/Time Analyzed:</b>	1/22/15 06:03 PM
<b>Lab ID:</b>	1501211BR1-03A	<b>Dilution Factor:</b>	2.25
<b>Date/Time Collecte</b>	1/19/15 12:12 PM	<b>Instrument/Filename:</b>	msd3.i / 3012217r1
<b>Media:</b>	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	1.0	2.7	3.6	Not Detected
Ethyl Benzene	100-41-4	0.70	3.7	4.9	Not Detected
m,p-Xylene	108-38-3	0.61	3.7	4.9	Not Detected
Methyl tert-butyl ether	1634-04-4	1.0	3.1	4.0	Not Detected
Naphthalene	91-20-3	0.95	11	24	Not Detected
o-Xylene	95-47-6	0.82	3.7	4.9	Not Detected
Toluene	108-88-3	0.74	3.2	4.2	Not Detected
TPH ref. to Gasoline (MW=100)	9999-9999-038	NA	D	460	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN  
351645

<b>Client ID:</b>	Lab Blank	<b>Date/Time Analyzed:</b>	1/22/15 11:27 AM
<b>Lab ID:</b>	1501211BR1-04A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd3.i / 3012207r1
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.45	1.2	1.6	Not Detected
Ethyl Benzene	100-41-4	0.31	1.6	2.2	Not Detected
m,p-Xylene	108-38-3	0.27	1.6	2.2	Not Detected
Methyl tert-butyl ether	1634-04-4	0.45	1.4	1.8	Not Detected
Naphthalene	91-20-3	0.42	4.7	10	Not Detected
o-Xylene	95-47-6	0.36	1.6	2.2	Not Detected
Toluene	108-88-3	0.33	1.4	1.9	Not Detected
TPH ref. to Gasoline (MW=100)	9999-9999-038	NA	D	200	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN  
351645

<b>Client ID:</b>	CCV	<b>Date/Time Analyzed:</b>	1/22/15 08:46 AM
<b>Lab ID:</b>	1501211BR1-05A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd3.i / 3012202
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	95
Ethyl Benzene	100-41-4	94
m,p-Xylene	108-38-3	97
Methyl tert-butyl ether	1634-04-4	89
Naphthalene	91-20-3	102
o-Xylene	95-47-6	98
Toluene	108-88-3	91
TPH ref. to Gasoline (MW=100)	9999-9999-038	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN  
351645

<b>Client ID:</b>	LCS	<b>Date/Time Analyzed:</b>	1/22/15 09:11 AM
<b>Lab ID:</b>	1501211BR1-06A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd3.i / 3012203
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	100
Ethyl Benzene	100-41-4	100
m,p-Xylene	108-38-3	102
Methyl tert-butyl ether	1634-04-4	96
Naphthalene	91-20-3	91
o-Xylene	95-47-6	108
Toluene	108-88-3	96
TPH ref. to Gasoline (MW=100)	9999-9999-038	Not Spiked

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

\* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN  
351645

<b>Client ID:</b>	LCSD	<b>Date/Time Analyzed:</b>	1/22/15 09:35 AM
<b>Lab ID:</b>	1501211BR1-06AA	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd3.i / 3012204
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	99
Ethyl Benzene	100-41-4	101
m,p-Xylene	108-38-3	103
Methyl tert-butyl ether	1634-04-4	99
Naphthalene	91-20-3	97
o-Xylene	95-47-6	108
Toluene	108-88-3	96
TPH ref. to Gasoline (MW=100)	9999-9999-038	Not Spiked

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

\* % Recovery is calculated using unrounded analytical results.

# CHAIN OF CUSTODY



Lab: Eurofins Air Toxics

TAT: Standard

**Report results to:**

Name: Chad Roper (chad.roper@aecom.com)  
 Company: AECOM  
 Mailing Address: 1220 Avenida Acaso  
 City, State, Zip: Camarillo, CA 93012  
 Telephone No.: 805.388.3775  
 Fax No.: 805.388.3577

**Project Information**

Chevron Facility: 351645  
 Site Address: 4276 MacArthur Blvd, Oakland CA  
 AECOM No.: 60816610-07-11 *JH*  
 PO No.: 54253ACM *JH*

Special instructions and/or specific regulatory requirements:

report results in micrograms per cubic meter

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 GC/MS SIM/Full Scan Modified TO-15 Hi/Lo (SP)-BTEX, MTBE < Naph & TPHg (Naph @ SIM 0.05)	Canister Pressure/Vacuum				Comments
							Initial	Final	Initial	Final	
SS-1-V-N-201501 <del>xx</del> <sup>JH</sup> 18	1-18-15	<del>1415</del> <sup>JH 1415</sup>	34058	X	<del>X</del> <sup>JH</sup>	X	-36	-4			
SS-1-V-Y-201501 <del>xx</del> <sup>JH</sup> 18	1-18-15	<del>1415</del> <sup>JH 1415</sup>	33645	X	<del>X</del> <sup>JH</sup>	X	-30	-3.5			
EB-1-V-N-201501 <del>xx</del> <sup>JH</sup> 19	1-19-15	<del>1412</del> <sup>JH 1412</sup>	12388	X	<del>X</del> <sup>JH</sup>	X	-29.5	-3.5			
IA-1-V-N-201501 <del>xx</del> <sup>JH</sup> 18	1-18-15	<del>1450</del> <sup>JH 1450</sup>	5411			X	<del>30</del>	-6.5			
JA-2-V-N-201501 <del>xx</del> <sup>JH</sup> 18	1-18-15	<del>1450</del> <sup>JH 1450</sup>	33381			X	-21.5	-4.5			
OA-1-V-N-201501 <del>xx</del> <sup>JH</sup> 18	1-18-15	1455	33908		<del>X</del> <sup>JH</sup>	X	-30	-7			

Relinquished by: *[Signature]* Date/Time 1/19/15 1217  
 Relinquished by: \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Method of Shipment: Hand Delivery

Received by: *[Signature]* Date/Time 1/19/15 1217  
 Received by: \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Sample Condition on Rcpt: *[Signature]*

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

1501211

1/30/2015

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

Project Name: 351645  
Project #:  
Workorder #: 1501211C

Dear Mr. Jim Harms

The following report includes the data for the above referenced project for sample(s) received on 1/19/2015 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

**WORK ORDER #: 1501211C**

Work Order Summary

<b>CLIENT:</b>	Mr. Jim Harms AECOM Environment 2020 L Street 4th Floor Suite 400 Sacramento, CA 95811	<b>BILL TO:</b>	Accounts Payable Camarillo AECOM Environment 1220 Avenida Acaso Camarillo, CA 93012
<b>PHONE:</b>	916-362-7100	<b>P.O. #</b>	54253ACM
<b>FAX:</b>	916-362-8100	<b>PROJECT #</b>	351645
<b>DATE RECEIVED:</b>	01/19/2015	<b>CONTACT:</b>	Kelly Buettner
<b>DATE COMPLETED:</b>	01/30/2015		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SS-1-V-N-20150118	Modified ASTM D-1946	3.1 "Hg	14.9 psi
02A	SS-1-V-Y-20150118	Modified ASTM D-1946	2 "Hg	14.7 psi
03A	EB-1-V-N-20150119	Modified ASTM D-1946	3.3 "Hg	14.8 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:   
 \_\_\_\_\_  
 Technical Director

DATE: 01/30/15

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

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# 1501211C**

Three 1 Liter Summa Canister (100% Certified) samples were received on January 20, 2015. 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.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
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 $\geq 95\%$ 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

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

**Client Sample ID: SS-1-V-N-20150118**

**Lab ID#: 1501211C-01A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	20
Nitrogen	0.22	80
Carbon Dioxide	0.022	0.051

**Client Sample ID: SS-1-V-Y-20150118**

**Lab ID#: 1501211C-02A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	21
Nitrogen	0.22	79
Carbon Dioxide	0.022	0.052

**Client Sample ID: EB-1-V-N-20150119**

**Lab ID#: 1501211C-03A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	0.87
Nitrogen	0.22	99



Air Toxics

Client Sample ID: SS-1-V-N-20150118

Lab ID#: 1501211C-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9012705	Date of Collection:	1/18/15 10:15:00 AM
Dil. Factor:	2.24	Date of Analysis:	1/27/15 09:59 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	20
Nitrogen	0.22	80
Carbon Dioxide	0.022	0.051
Methane	0.00022	Not Detected
Helium	0.11	Not Detected

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



Air Toxics

Client Sample ID: SS-1-V-Y-20150118

Lab ID#: 1501211C-02A

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9012706	Date of Collection: 1/18/15 10:15:00 AM
Dil. Factor:	2.15	Date of Analysis: 1/27/15 10:27 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	21
Nitrogen	0.22	79
Carbon Dioxide	0.022	0.052
Methane	0.00022	Not Detected
Helium	0.11	Not Detected

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



Air Toxics

Client Sample ID: EB-1-V-N-20150119

Lab ID#: 1501211C-03A

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9012707	Date of Collection:	1/19/15 12:12:00 PM
Dil. Factor:	2.25	Date of Analysis:	1/27/15 11:17 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	0.87
Nitrogen	0.22	99
Carbon Dioxide	0.022	Not Detected
Methane	0.00022	Not Detected
Helium	0.11	Not Detected

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



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1501211C-04A

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9012704	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/27/15 09:19 AM

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
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



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1501211C-04B

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9012703b	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/27/15 08:38 AM

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Helium	0.050	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCS

Lab ID#: 1501211C-05A

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9012702	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/27/15 08:09 AM

Compound	%Recovery	Method Limits
Oxygen	90	85-115
Nitrogen	95	85-115
Carbon Dioxide	93	85-115
Methane	89	85-115
Helium	92	85-115

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1501211C-05AA

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9012724	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/27/15 10:16 PM

Compound	%Recovery	Method Limits
Oxygen	90	85-115
Nitrogen	95	85-115
Carbon Dioxide	94	85-115
Methane	88	85-115
Helium	93	85-115

Container Type: NA - Not Applicable

# CHAIN OF CUSTODY



Lab: Eurofins Air Toxics

TAT: Standard

**Report results to:**

Name: Chad Roper (chad.roper@aecom.com)  
 Company: AECOM  
 Mailing Address: 1220 Avenida Acaso  
 City, State, Zip: Camarillo, CA 93012  
 Telephone No.: 805.388.3775  
 Fax No.: 805.388.3577

**Project Information**

Chevron Facility: 351645  
 Site Address: 4276 MacArthur Blvd, Oakland CA  
 AECOM No.: 60816610-07-11 *JH*  
 PO No.: 54253ACM *JH*

Special instructions and/or specific regulatory requirements:

report results in micrograms per cubic meter

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 GC/MS SIM/Full Scan Modified TO-15 Hi/Lo (SP)-BTEX, MTBE < Naph & TPHg (Naph @ SIM 0.05)	Canister Pressure/Vacuum				Comments
							Initial	Final	Initial	Final	
SS-1-V-N-201501 <del>xx</del> <sup>JH</sup> 18	1-18-15	14:15	34058	X	X <i>JH</i>	X	-36	-4			
SS-1-V-Y-201501 <del>xx</del> <sup>JH</sup> 18	1-18-15	15:15	33645	X	X <i>JH</i>	X	-30	-3.5			
EB-1-V-N-201501 <del>xx</del> <sup>JH</sup> 19	1-19-15	12:12	12388	X	X <i>JH</i>	X	-29.5	-3.5			
IA-1-V-N-201501 <del>xx</del> <sup>JH</sup> 18	1-18-15	14:50	5411			X	<del>30</del>	6.5			
JA-2-V-N-201501 <del>xx</del> <sup>JH</sup> 18	1-18-15	14:50	33381			X	-21.5	-4.5			
OA-1-V-N-201501 <del>xx</del> <sup>JH</sup> 18	1-18-15	14:55	33908		X <i>JH</i>	X	-30	-7			

Relinquished by: *[Signature]* Date/Time 1/19/15 1217  
 Relinquished by: \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Method of Shipment: Hand Delivery

Received by: *[Signature]* Date/Time 1/19/15 1217  
 Received by: \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Sample Condition on Rcpt: *[Signature]*

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

1501211

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

**WORK ORDER #: 1406128A**

Work Order Summary

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

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
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:   
 \_\_\_\_\_  
 Technical Director

DATE: 06/24/14

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

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

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

**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.



Air Toxics

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



Air Toxics

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



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



Air Toxics

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

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

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



Air Toxics

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

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

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

**WORK ORDER #: 1406128B**

Work Order Summary

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

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
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:   
 \_\_\_\_\_  
 Technical Director

DATE: 06/23/14

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  
 This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

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.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
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 $\geq 95\%$ 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

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

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

**Lab ID#: 1406128B-01A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
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**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
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**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.21	0.55
Nitrogen	0.21	99



Air Toxics

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)



Air Toxics

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)



Air Toxics

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)



Air Toxics

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

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
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



Air Toxics

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

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Helium	0.050	Not Detected

Container Type: NA - Not Applicable



Air Toxics

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



Air Toxics

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

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

**WORK ORDER #: 1406128C**

Work Order Summary

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

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
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:   
 Technical Director

DATE: 06/24/14

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

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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

**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.



Air Toxics

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)



Air Toxics

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)



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)



Air Toxics

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)



Air Toxics

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)



Air Toxics

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)



Air Toxics

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)



Air Toxics

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)

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

**Client Sample ID: Lab Blank**

**Lab ID#: 1406128C-07B**

**MODIFIED METHOD TO-15 GC/MS FULL SCAN**

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

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
>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**



Air Toxics

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

<b>Compound</b>	<b>%Recovery</b>
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**



Air Toxics

**Client Sample ID: CCV**

**Lab ID#: 1406128C-08B**

**MODIFIED METHOD TO-15 GC/MS FULL SCAN**

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

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

**Container Type: NA - Not Applicable**

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

**WORK ORDER #: 1406128D**

Work Order Summary

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

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
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:   
 \_\_\_\_\_  
 Technical Director

DATE: 06/24/14

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

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.  
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9562  
 (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.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
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.

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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

## 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

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

Lab ID#: 1406128D-04A

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

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

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

**Container Type: 6 Liter Summa Canister (SIM Certified)**

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

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

Lab ID#: 1406128D-04B

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

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

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
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)**

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



Air Toxics

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

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

Lab ID#: 1406128D-05B

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

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

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
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)**

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

Client Sample ID: Lab Blank

Lab ID#: 1406128D-06A

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

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

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

Container Type: NA - Not Applicable

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



Air Toxics

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



Air Toxics

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

Client Sample ID: CCV

Lab ID#: 1406128D-07B

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

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

<b>Compound</b>	<b>%Recovery</b>
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**

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



Air Toxics

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



Air Toxics

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

Client Sample ID: LCS

Lab ID#: 1406128D-08B

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

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

<b>Compound</b>	<b>%Recovery</b>	<b>Method Limits</b>
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**

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

Client Sample ID: LCSD

Lab ID#: 1406128D-08BB

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

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

<b>Compound</b>	<b>%Recovery</b>	<b>Method Limits</b>
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**

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