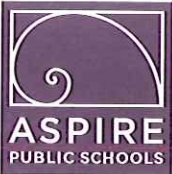


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By Alameda County Environmental Health at 9:35 am, Sep 24, 2014



1001 22nd Avenue, Suite 100
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tel 510-434-5000 fax 510-434-5010
www.aspirepublicschools.org

September 22, 2014

Jerry Wickham PG, CHG
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6540

Subject: Soil Vapor Intrusion Assessment Report for Proposed Gymnasium for the Former Pacific Electric Motors Site 1009 66th Avenue, Oakland, California (Fuel Leak Case Number RO0000411)

Dear Mr. Wickham:

Enclosed is the Soil Vapor Intrusion Assessment Report for Proposed Gymnasium for the Former Pacific Electric Motors Site 1009 66th Avenue, Oakland, California; Alameda County Environmental Health (ACDEH) Fuel Leak Case Number RO0000411 ("the Site"). This report was prepared in response to a request from ACEH to evaluate potential vapor intrusion concerns related to residual volatile organic compounds that may be in soil, soil gas, and groundwater at the Site. The work plan was revised in response to the conditional approval letter from ACEH dated July 24, 2014..

I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or comments, please call Erica Kalve of ARCADIS at (415) 491-4530 extension 22, or me at (510) 434-5071.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Simon", with a long horizontal flourish extending to the right.

Tim Simon
Aspire Public Schools

College for Certain, LLC

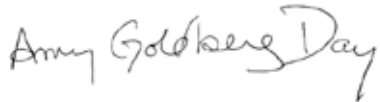
**Soil Vapor Intrusion Assessment
Report for Proposed Gymnasium**

Former Pacific Electric Motors Site
1009 66th Avenue
Oakland, California
(Fuel Leak Case Number RO0000411)

September 23, 2014



Erica Kalve, P.G.
Senior Geologist



Amy Goldberg Day
Principal Toxicologist



Angeline Tan
Environmental Specialist II

**Soil Vapor Intrusion
Assessment Report for
Proposed Gymnasium**

Former Pacific Electric Motors
Site, 1009 66th Avenue, Oakland,
California
(Fuel Leak Case Number
RO0000411)

Prepared for:
Aspire Public Schools
1001 22nd Avenue Suite 100
Oakland, California 94606

Prepared by:
ARCADIS U.S., Inc.
2000 Powell Street
Suite 700
Emeryville
California 94608
Tel 510 652 4500
Fax 510 652 4906

Our Ref.:
EM009155.0017

Date:
September 23, 2014

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A	ACEH Work Plan Approval Letter dated July 24, 2014
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- B Boring and Soil Vapor Probe Construction Logs
- C Soil Vapor Sample Collection Logs
- D Laboratory Analytical Reports

Acronyms and Abbreviations

µg/m ³	micrograms per cubic meter
ACDEH	Alameda County Department of Environmental Health
ACPWA	Alameda County Public Works Agency
ARCADIS	ARCADIS U.S., Inc.
ASTM	American Society for Testing and Materials
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	Corrective Action Plan
CFC	College for Certain, LLC
COPCs	constituents of potential concern
DTSC	Department of Toxic Substances Control
mL	milliliters
MTBE	methyl tertiary-butyl ether
OEHHA	Office of Environmental Health Hazard Assessment
PCBs	polychlorinated biphenyls
(PEM	Former Pacific Electric Motors
PID	photoionization detector
QA	quality assurance
RAOs	remediation action objectives
Site	former Pacific Electric Motors (PEM) Facility located at 1009 66th Avenue in Oakland, California
SVE/AS	soil-vapor extraction/air sparging
SWRCB	California State Water Resources Control Board
TBA	tert-Butyl alcohol
TPHg	total petroleum hydrocarbons as gasoline

TSCA	Toxic Substance Control Act
VIMA	Vapor Intrusion Mitigation Advisory”
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOCs	volatile organic compounds

Certification

Former Pacific Electric Motors
Facility, 1009 66th Avenue
Oakland, California

All hydrogeologic and geologic information, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by an ARCADIS U.S., Inc., California Professional Geologist . *



Expires Sept. 30, 2015

A handwritten signature in blue ink that reads "Erica Kalve".

September 23, 2014

Date

Erica Kalve, P.G.
Senior Geologist
California Professional Geologist (8245)

- *A professional geologist's certification of conditions comprises a declaration of his or her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations, and ordinances.**

1. Introduction

ARCADIS has prepared this Soil Vapor Intrusion Assessment Report for the Proposed Gymnasium on behalf of College for Certain, LLC (CFC) for the Former Pacific Electric Motors (PEM) Facility located at 1009 66th Avenue in Oakland, California (“the Site”; Figure 1). Post remedial soil and groundwater sampling has confirmed that remedial actions have successfully reduced concentrations of constituents of potential concern (COPCs) in soil and groundwater. Alameda County Department of Environmental Health (ACDEH) has requested the collection of soil gas data to assess whether remedial actions have also reduced concentrations of constituents of potential concern (COPCs) in soil gas and to ensure that vapor intrusion is not a health concern at the existing and proposed on-site buildings.

The purpose of this Soil Vapor Assessment is to assess the potential for vapor intrusion to occur into the proposed gymnasium (also referred to as proposed building 300; Figure 2). This report summarizes field activities and the results of the installation and sampling of five shallow vapor probes at the site (SVP-1 through SVP-5; Figure 2) as well as providing recommendations for the proposed gymnasium building to mitigate potential vapor intrusion. The work summarized in this report was completed in accordance with the Department of Toxic Substances Control (DTSC) Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (the DTSC Vapor Intrusion Guidance Document; DTSC 2011), and the *Vapor Intrusion Evaluation Work Plan* (ARCADIS 2014; the work plan) submitted to the ACDEH on July 11, 2014.

The ACDEH conditionally approved the work plan in a letter dated July 24, 2014 (Appendix A). The conditions were met and included the following:

- In addition to the originally two proposed soil vapor sample locations, three additional soil vapor sample locations were installed.
- The purge volume test, leak test, and soil vapor sample collection was conducted at least 48 hours after vapor probe installation.
- Confirmation of naphthalene using United States Environmental Protection Agency (USEPA) Method TO-17 was conducted.
- Additional soil vapor analytes (i.e. methane, carbon dioxide, oxygen) were included in the sample plan.

Former Pacific Electric Motors
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- The soil vapor probes will not be decommissioned unless ACDEH concurs that no further sampling is necessary.
- Passive sampling devices were not needed and are not approved for the Site.

2. Site Description and History

2.1 Background

The Site is 2.51 acres and is located on the northwestern side of 66th Avenue between East 14th Street and San Leandro Street (Figure 1). The area around the Site is developed with a mixture of commercial, industrial, government, and multi-family residential buildings. The Site is currently owned by CFC.

The first industrial development of the property was in about 1948 when the two buildings were constructed for the former Pacific Electric Motors (PEM) facility. PEM occupied the Site from 1948 to 2001. Activities conducted at the Site by PEM included manufacturing specialty magnets, power supplies, and components, and repairing motors, generators, transformers, and magnets. A 2,000-gallon gasoline underground storage tank (UST) was reportedly installed at the Site by PEM in 1975. In addition, the gasoline shed in the fueling area may have stored vehicle lubricants and oil for vehicle maintenance.

The structures that were on the property were demolished between November 2009 and February 2010. The Site has been redeveloped into the Aspire Golden State College Preparatory Academy, which serves grades 6 through 12 and has capacity for 570 students; the school opened in August 2011 (Figure 2). The school occupies approximately 1.4 acres and consists of the following site features:

- Six two-story buildings (approximately 41,430 square feet total including 24 full-sized classrooms, 4 labs, 3 girls and 3 boys restrooms, and 4 staff restrooms)
- Asphalt-paved parking area with access via two driveways on 66th Avenue (one for ingress and one for egress)
- Asphalt-paved area for recreation
- Asphalt-paved and concrete pedestrian walkways

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- Planter and landscaped areas

As part of the redevelopment of the Site, the ground surface comprised of roadways, sidewalks, parking areas, buildings, and planter areas is serving as a cap to mitigate potential exposure to remaining polychlorinated biphenyls (PCBs) containing soil at the Site.

2.2 Environmental Site History

The Revised Corrective Action Plan (Revised CAP) summarized the results of previous investigations, presented the site conceptual model, quantified the baseline risk of COPCs, developed site-specific risk-based cleanup goals, evaluated potential remedies, and presented an implementation plan for the selected remedies (ARCADIS 2009a). The Revised CAP was approved by the ACDEH in their letter to Aspire Charter Schools dated August 13, 2009 (ACDEH 2009).

Several remedial actions were implemented in accordance with the Revised CAP including:

- Soil excavation and removal of approximately 8,662 tons of soil containing elevated concentrations of lead, arsenic, PCBs, benzene, and total petroleum hydrocarbons as gasoline (TPHg); ARCADIS 2014.
- Air injection and soil-vapor extraction to reduce concentrations of TPHg, benzene, toluene, ethylbenzene, and xylenes, (BTEX), tert-Butyl alcohol (TBA), and methyl tertiary-butyl ether (MTBE) in groundwater, soil, and soil gas. Two phases of soil-vapor extraction/air sparging (SVE/AS) were implemented and an estimated 798 pounds of fuel vapors were recovered from the Site (ARCADIS 2014a).
- Areas of polychlorinated-biphenyl (PCB)-containing soil (and building materials) were remediated in accordance with the Revised CAP and Self-Implementing Cleanup Plan (ARCADIS 2009b, ARCADIS 2009C).

The implementation of the Revised CAP was reported to ACDEH (and USEPA) in the report titled, Soil Removal Action Completion Report, dated September 15, 2010 (ARCADIS 2010b). Removal of soil and building materials affected by PCBs was documented in a letter report that was prepared in accordance with the Toxic Substance Control Act (TSCA) and transmitted to USEPA on August 13, 2010 (“the TSCA Report”; ARCADIS 2010a).

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As documented in the Groundwater Monitoring Report (ARCADIS 2014a), the analytical results for groundwater samples collected at the Site indicate that concentrations of TPHg, BTEX, and MTBE have decreased over time and remain low. This decreasing trend in concentrations is likely the direct result of the excavation and off-site disposal of fuel-affected soil that took place at the Site in 1995, 2002, and 2010, and the operation of the soil-vapor extraction/air sparging (SVE/AS) system. Additionally, the development plan for the property included the construction of buildings with a raised foundation approximately 18 inches above the ground to create a vented “crawl space” to create a passive system to further reduce the potential for soil vapors to intrude to the existing onsite buildings.

3. Soil Vapor Probe Installation

To assess the vapor intrusion potential in the vicinity of the proposed gymnasium, ARCADIS installed five soil vapor probes (SVP-1 through SVP-5) within the footprint of the proposed gymnasium (Figure 2). Prior to installation, drilling permits were obtained from the Alameda County Public Works Agency, Water Resources Section (ACPWA) and a grouting inspection was scheduled with an agent from the county (included in Appendix B). Utility clearance was also performed at each location prior to initiating intrusive activities.

3.1 Construction of Soil Vapor Probes

The approximate locations of the soil vapor probes are shown on Figure 2. Soil vapor monitoring points were installed in accordance with the DTSC Active Soil Gas Investigation Advisory (April 2012) guidance (DTSC 2012). Table 1 provides construction details for SVP-1 through SVP-5.

Each soil vapor probe location was advanced to the total depth between 3 feet 8 inches and 3 feet nine inches below ground surface (bgs) using mechanical auger methods (mechanical methods were required to penetrate the cap). Following the advancement of each soil vapor probe location to its final depth, a 6-inch-long, 0.375-inch-outer-diameter stainless steel soil vapor screen was set in a 1-foot interval of standard sand pack, allowing approximately 3 inches of sand above and below the screen. Teflon® tubing was connected to the soil vapor screen and capped with a vapor-tight stainless steel Swagelok cap at the surface to eliminate the potential for barometric pressure fluctuations to induce vapor transport between the subsurface and the atmosphere. The vapor-tight cap was installed to allow equilibration of soil vapor concentrations to commence immediately after installation.

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A 6-inch interval of dry, granular bentonite was placed above the sand pack, followed by hydrated granular bentonite to 1 foot bgs. The sand pack is used around the screened interval of each sample probe to allow soil vapor from the adjacent soil to reach the probes. Dry granular bentonite is used to ensure that the hydrated bentonite does not seal the vapor probe screen and inhibit the collection of soil vapor. The surface of each probe location was secured with a traffic-rated well box set in approximately 6 inches of concrete, flush with the surface. Soil vapor probe construction logs detailing probe schematics are shown on Table 1 and included as Appendix B.

3.2 Waste Management

Soil cuttings generated during drilling operations were containerized in one properly labeled Department of Transportation-approved, 55-gallon drum and stored onsite. Soil cuttings will be removed by disposal contractor and be transported to an appropriate disposal facility. Waste disposal manifests will be produced after drum removal and will be submitted under separate cover letter.

4. Soil Vapor Sampling

Soil vapor sampling was conducted in accordance with DTSC's Active Soil Gas Investigation Advisory (DTSC 2012). Shut-in tests, leak check tests and purge volume tests were conducted on each of the soil vapor monitoring points as described in the work plan. Purge volume calculations, field conditions, flow rate, pump specifics, and other applicable information were recorded by field personnel on soil vapor sample collection logs and are included as Appendix C of this report. This section summarizes the sampling procedures and analytical results associated with the August 26, 2014 soil vapor sampling event.

4.1 Sampling Procedures

The shut-in test was conducted by assembling the above-ground valves, lines and fittings downstream from the top of the soil gas monitoring point. The system was evacuated to a minimum measured vacuum of about 100 inches of water using a purge pump. The test was conducted while the sampling canister is attached with its valve in the closed position. The vacuum gauge was connected to the system with a "T"-fitting for at least one minute or longer with the field staff observing the reading. If there was any observable loss of vacuum, the fittings were adjusted until the vacuum

in the sample train does not noticeably dissipate. After the shut-in test is validated, the sampling train was not altered and the quantitative leak test was performed.

The quantitative leak test was conducted on the sample manifold using the shroud and helium methodologies and helium was measured in the field using a handheld gas meter at the time of sample collection. The helium shroud concentrations were noted in the field notes (Appendix C) and helium was added to the shroud throughout the sample collection process to maintain the target concentration. Analytical samples were analyzed for helium using American Society for Testing and Materials (ASTM) Method 1946 to confirm that no significant leaks were present at the time of sample collection (Table 2).

The purge test was performed at soil vapor point SVP-1 in accordance to the work plan to ascertain the proper purge volume for the investigation. Soil-vapor samples were collected using 3, 5, and 7 volume purges from the sample apparatus. Samples were collected directly into calibrated disposable syringes for analysis by a hand-held and calibrated photoionization detector (PID) as an indication of total volatile organic compounds (VOCs) present in soil gas. The purge volume sample that reports the highest concentration of VOCs was the 3 -volume purge (1,390 milliliters [mL]) and was used as a guide for each of the purge volumes for the other soil gas monitoring point.

Following the completion of the purge volume and helium leak test, the soil vapor samples were then collected using a 1-liter batch-certified SUMMA™ canister. Following the collection of the SUMMA canister sample, an additional soil vapor sample was collected using a TO-17 sorbent tube and low-flow air pump at a flow rate of ≤ 170 mL/min. The work plan called only for the collection of a SUMMA canister for TO-15 analysis; however, ACDEH's Work Plan approval letter requested that a TO-17 sorbent sample be collected to confirm the results of naphthalene.

During the soil vapor sampling activities, one field blank was also submitted to the laboratory for quality assurance (QA) purposes.

The soil vapor samples were shipped by FedEx under appropriate chain-of-custody protocols to Eurofins Air Toxics Inc., in Folsom, California, for analysis of the following:

- TPHg, BTEX, MTBE, and naphthalene by Modified USEPA Method TO-15
- Naphthalene by Modified USEPA Method TO-17

- Fixed gases, including oxygen, carbon dioxide, methane, and helium by Modified ASTM Method D-1946

4.2 Soil Vapor Analytical Results

Soil vapor samples were collected at the site on August 26, 2014, from soil vapor probes SVP-1 through SVP-5. All five probes were screened at 3 feet 6 inches feet bgs. The analytical results are presented in Tables 2 and 3 and Figure 2 and discussed below.

Benzene, toluene, ethylbenzene, m,p-xylenes, o-xylenes and TPHg were detected at concentrations above their respective laboratory reporting limits in all five soil vapor samples. Naphthalene was detected at concentration above its laboratory reporting limit in one soil vapor sample. Below is a summary of the detected concentrations:

- Benzene was detected above its laboratory reporting limit at concentrations ranging from 98 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) in soil vapor sample collected from SVP-3 to 4,300 $\mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-4.
- Toluene was detected above its laboratory reporting limit at concentrations ranging from 100 $\mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-3 to 910 $\mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-4.
- Ethylbenzene was detected above its laboratory reporting limit at concentrations ranging from 7.6 $\mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-3 to 1,400 $\mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-4.
- M,p-xylenes was detected above its laboratory reporting limit at concentrations ranging from 30 $\mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-3 to 2,400 $\mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-4.
- O-xylene was detected above its laboratory reporting limit at concentrations ranging from 11 $\mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-3 to 880 $\mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-4.
- MTBE was detected above its laboratory reporting limit at concentrations ranging from 10 $\mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-2 to 2,800 $\mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-4.

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- Naphthalene was detected in one soil vapor sample collected from SVP-4 at a concentration of $19 \mu\text{g}/\text{m}^3$ analyzed by Method TO-17.
- TPHg was detected above its laboratory reporting limit at concentrations ranging from $12,000 \mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-3 to $490,000 \mu\text{g}/\text{m}^3$ in soil vapor sample collected from SVP-4.

With the exception of benzene, the other detected COPCs were below their respective risk-based soil vapor thresholds (Table 2). Benzene was detected above the risk-based soil vapor threshold of $84 \mu\text{g}/\text{m}^3$ in five soil vapor samples. Table 2 and Figure 2 present summaries of the analytical results from the soil vapor samples. Laboratory analytical reports are included as Appendix D.

4.3 Fixed Gases and Biodegradation

The presence and concentration of oxygen and methane can be indications of biodegradation of soil vapor in the subsurface. Typically, a decrease in hydrocarbon concentrations concurrent with a decrease in oxygen and an increase in methane are indicative of aerobic biodegradation of hydrocarbons. Fixed gases analytical data are summarized in Table 3. Laboratory analytical reports are included as Appendix D. As shown in Table 3, oxygen percentages ranged from 15% in SVP-2 to 19% in SVP-1, SVP-3 and SVP-4. The oxygen percentages and the presence and concentrations of methane and oxygen at the seven sample probe depths suggest an active biodegradation zone at each soil vapor probe location.

5. Soil Vapor Sampling Data Quality Assurance

For data QA purposes, multiple QA techniques were employed during the August 26, 2014 soil vapor sampling. Both shut-in and helium leak tests were performed during the soil vapor sample collection period to ensure integrity of the sampling system and to demonstrate that ambient air was not being permitted into the sampling train or entering the subsurface, potentially biasing the samples. In addition, one field blank was submitted to assess background contamination potentially due to equipment.

5.1 Leak Test Analytical Results

During the June 2014 soil vapor sampling event, helium was detected in SVP-1 and SVP-2 at percentages of 0.79% and 0.71%, respectively. However, the detection is less than 1% and does not indicate the compromise of the sampling train integrity. An

ambient air leak up to 5 percent is acceptable if quantitative tracer testing is performed by shrouding (DTSC 2012). Helium was not detected in SVP-3, SVP-4, and SVP-5 vapor supporting sampling train.

5.2 Field Blank Analytical Results

One field blank sample was collected by transferring the contents of a laboratory-provided 1-liter pressurized SUMMA canister to an evacuated 1-liter SUMMA canister. Transfer was achieved using a 100% certified soil vapor sampling manifold provided by the laboratory. With the exception of oxygen which was detected at 0.39%, concentrations of all analyzed compounds were below the respective laboratory reporting limits.

6. Conclusion and Recommendations

Soil gas concentrations were screened against health based screening criteria developed for the protection of the resident using the methodology recommended by DTSC (DTSC 2014). Per the DTSC methodology, indoor air regional screening criteria (USEPA 2014) are divided by the appropriate attenuation factor presented in the DTSC vapor intrusion guidance document (DTSC 2011). The results of the screening evaluation indicate that vapor intrusion mitigation is appropriate. The DTSC document "Vapor Intrusion Mitigation Advisory" (VIMA, DTSC 2009) states that mitigation should be performed on sites with an estimated cancer risk between 1×10^{-6} and 1×10^{-4} . Mitigation measures will prevent subsurface vapors from contacting building occupants at concentrations associated with health concerns. Conceptually, and consistent with the DTSC VIMA document, the vapor mitigation system will be comprised of vapor barrier membrane technology and a passive sub-slab soil vapor depressurization system (Figure 3).

During mitigation, remediation might be necessary to reduce the soil gas concentrations to below the 1×10^{-6} estimated cancer risk levels. To evaluate the need for remediation, quantitative remediation action objectives (RAOs) will be developed compliant with the methodology in the Office of Environmental Health Hazard Assessment (OEHHA) guidance document "Guidance for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(f): Guidance for Exposure and Health Risk at Existing and Proposed School Sites", (OEHHA 2004, http://oehha.ca.gov/public_info/public/kids/pdf/SchoolscreenFinal.pdf). The RAOs will be protective of both the student and the teacher, the most sensitive populations within

a school site setting. The implementation of mitigation, and if necessary, remediation, will provide health based protection from residual chemicals to the school occupants.

Former Pacific Electric Motors
Facility, 1009 66th Avenue
Oakland, California

7. References

ACDEH. 2009. Revised CAP approval letter to Aspire Charter Schools dated August 13, 2009 (ACDEH 2009)

ARCADIS U.S., Inc. (ARCADIS). 2009a. Revised Corrective Action Plan, Proposed Aspire School Site, 1009 66th Avenue, Oakland, California (Fuel Leak Case No. RO0000411). July 17.

¾¾¾. 2009b. Toxic Substance Control Act Self-Implementing Cleanup Notification and Certification Former Pacific Electric Motors Facility 1009 66th Avenue in Oakland, California. October 23.

¾¾¾. 2010a. TSCA Letter Report August 13, 2010

¾¾¾. 2010b. Soil Removal Action Completion Report, dated September 15, 2010

¾¾¾. 2014a. Groundwater Monitoring Report, Former Pacific Electric Motors Site, 1009 66th Avenue, Oakland, California (Fuel Leak Case Number RO0000411). February 28.

¾¾¾. 2014b. Revised Soil Management Plan, Former Pacific Electric Motors Site, 1009 66th Avenue, Oakland, California (Fuel Leak Case Number RO0000411). May 20.

California Department of Toxic Substances Control (DTSC). 2009. Vapor Intrusion Mitigation Advisory. April. Section 6.3.4 revised May 8.

¾¾¾. 2011. Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.

¾¾¾. 2012. Advisory, Active Soil Gas Investigations. Jointly developed by the California Environmental Protection Agency Department of Toxic Substances Control, Los Angeles Regional Water Quality Control Board, and San Francisco Regional Water Quality Control Board. April.

2014. Office of Human and Ecological Risk (HERO), Human Health Risk Assessment (HHRA) Note, HERO HHRA Note Number: 3. July.

Former Pacific Electric Motors
Facility, 1009 66th Avenue
Oakland, California

Office of Environmental Health Hazard Assessment (OEHHA). 2004. Guidance for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(f): Guidance for Assessing Exposures and Health Risks at Existing and Proposed School Sites. (Final Report). February.

United States Environmental Protection Agency (USEPA). 2014. Regional Screening Levels. Available at: <http://www.epa.gov/region9/superfund/prg/>. May.

ARCADIS

Tables

Table 1
Soil Vapor Monitoring Well Construction Details
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Location ID	Total Depth	Screen Length	Sand	Bentonite Chips	Hydrated Bentonite	Grout
	(feet bgs)	(inch)	(feet bgs)	(feet bgs)	(feet bgs)	(feet bgs)
SVP-1	3.75	6	2.5 - 3.75	2.0 - 2.5	1.0 - 2.0	0.5 - 1.0
SVP-2	3.75	6	2.5 - 3.75	2.0 - 2.5	1.0 - 2.0	0.5 - 1.0
SVP-3	3.75	6	2.5 - 3.75	2.0 - 2.5	1.0 - 2.0	0.5 - 1.0
SVP-4	3.66	6	2.5 - 3.66	2.0 - 2.5	1.0 - 2.0	0.5 - 1.0
SVP-5	3.75	6	2.5 - 3.75	2.0 - 2.5	1.0 - 2.0	0.5 - 1.0

Notes:

bgs = below ground surface

Table 2
Soil Vapor Analytical Results for TO-15 and TO-17
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Compound Name / Location ID	USEPA Method TO-15							USEPA Method TO-17	
	Total Petroleum Hydrocarbons (gasoline) ²	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Methyl Tertiary-Butyl Ether (MTBE)	Naphthalene	
	(µg/m ³)	(µg/m ³)	(µg/m ³)	(µg/m ³)	(µg/m ³)	(µg/m ³)	(µg/m ³)	(µg/m ³)	
USEPA Residential RSL for Indoor Air/DTSC Note 3	--	0.084	310	1.1	100	100	11	0.083	0.083
Adjusted Soil Gas Screening Level Future Residential Buildings ¹	--	84	310,000	1,100	100,000	100,000	11,000	83	83
SVP-1	90,000	300	160	80	220	78	2,000	<48	<17
SVP-2	29,000	1,600	370	23	60	23	10	<44	<17
SVP-3	12,000	98	100	7.6	30	11	48	<9.1	<17
SVP-4	490,000	4,300	910	1,400	2,400	880	2,800	<190	19
SVP-5	18,000	1,600	390	64	240	83	73	<48	<17

Notes:

Bold indicates result above the screening level

< = not detected above the reporting limit

-- = not available; aliphatic and aromatic screening levels will be used as appropriate

µg/m³ = microgram(s) per cubic meter

USEPA = United States Environmental Protection Agency

RSL = Regional Screening Level

1 = Attenuation factor for a future residential building is 0.001 (DTSC 2011).

2 = Total Petroleum Hydrocarbons to be analyzed for aliphatic and aromatic fractions.

Reference:

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

Table 3
Soil Vapor Analytical Results For Fixed Gases
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Compound Name / Location ID	Oxygen	Methane	Carbon Dioxide	Helium
	(%v)	(%v)	(%v)	(%v)
SVP-1	19	0.013	<0.017	0.79
SVP-2	15	0.77	<0.017	0.71
SVP-3	19	0.067	<0.017	<0.087
SVP-4	19	0.94	0.044	<0.068
SVP-5	18	0.058	<0.018	<0.091

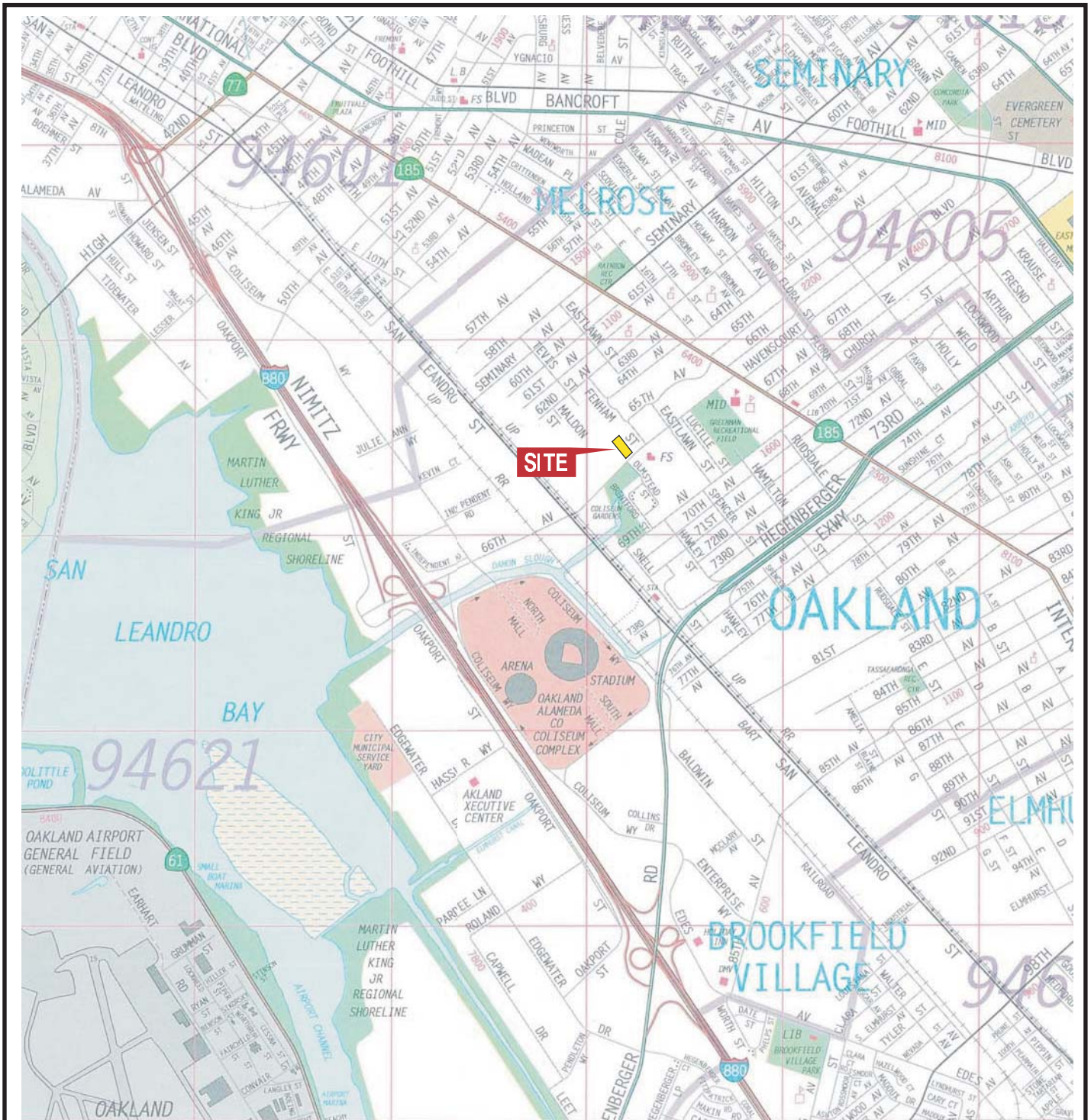
Notes:

< = not detected above the reporting limit

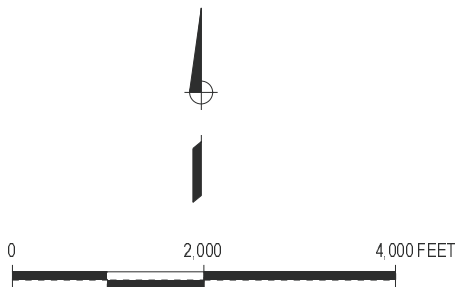
%v = percent volume

ARCADIS

Figures



MAP SOURCE: Copyright 1995, Thomas Bros. Map ALAMEDA COUNTY 2002 Edition



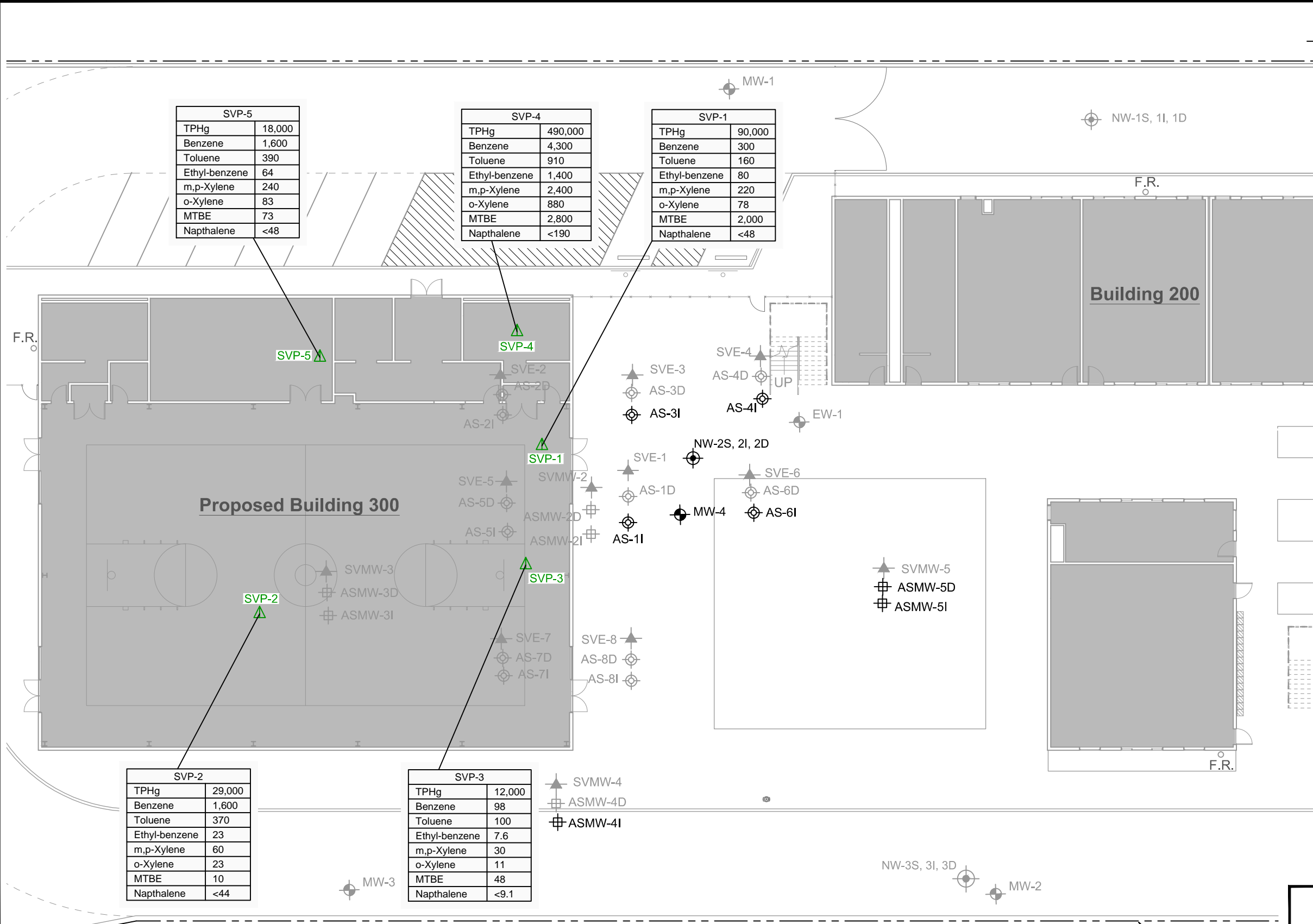
1009 66TH AVENUE, OAKLAND, CALIFORNIA

SITE VICINITY MAP



FIGURE
1

CITY:(Read) DIV:(GROUP:Read) DB:(Read) LD:(Opt) PIC:(Opt) PM:(Read) TM:(Opt) LYR:(Opt) ON="OFF" REF="C:\Users\jharris\Desktop\ENV\CAD\RETURN-TO-EMERY\11E_CALEM09155\001700001\DWG\EM09155 B02.dwg LAYOUT: 2. SAVED: 9/19/2014 10:32 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: ... PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 9/19/2014 10:32 AM BY: HARRIS, JESSICA



SVP-5	
TPHg	18,000
Benzene	1,600
Toluene	390
Ethyl-benzene	64
m,p-Xylene	240
o-Xylene	83
MTBE	73
Napthalene	<48

SVP-4	
TPHg	490,000
Benzene	4,300
Toluene	910
Ethyl-benzene	1,400
m,p-Xylene	2,400
o-Xylene	880
MTBE	2,800
Napthalene	<190

SVP-1	
TPHg	90,000
Benzene	300
Toluene	160
Ethyl-benzene	80
m,p-Xylene	220
o-Xylene	78
MTBE	2,000
Napthalene	<48

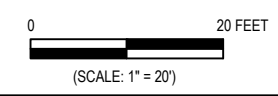
SVP-2	
TPHg	29,000
Benzene	1,600
Toluene	370
Ethyl-benzene	23
m,p-Xylene	60
o-Xylene	23
MTBE	10
Napthalene	<44

SVP-3	
TPHg	12,000
Benzene	98
Toluene	100
Ethyl-benzene	7.6
m,p-Xylene	30
o-Xylene	11
MTBE	48
Napthalene	<9.1

SVP-3		Location ID
TPHg	12,000	
Benzene	98	
Toluene	100	
Ethyl-benzene	7.6	
m,p-Xylene	30	
o-Xylene	11	
MTBE	48	
Napthalene	<9.1	

- LEGEND:**
- Property Line
 - MW-4 Monitoring Well
 - NW-2S Nested Monitoring Well
 - AS-6I Air Injection Well
 - ASMW-5D Air Injection Monitoring Well
 - SVE-4 SVE or SVE Monitoring Well
 - SVP-1 Soil Vapor Point Location

- NOTES:**
- TPHg = total petroleum hydrocarbons as gasoline
 - TBA = tertiary butyl alcohol
 - MTBE = methyl tertiary-butyl ether
 - "<" = not detected above the laboratory reporting limit given
 - VOCs = volatile organic compounds
 - SVE = Soil Vapor Extraction
 - GREY symbols represent abandoned well locations

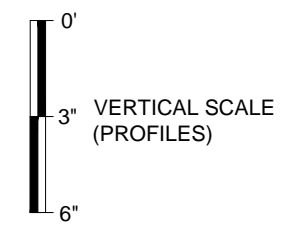
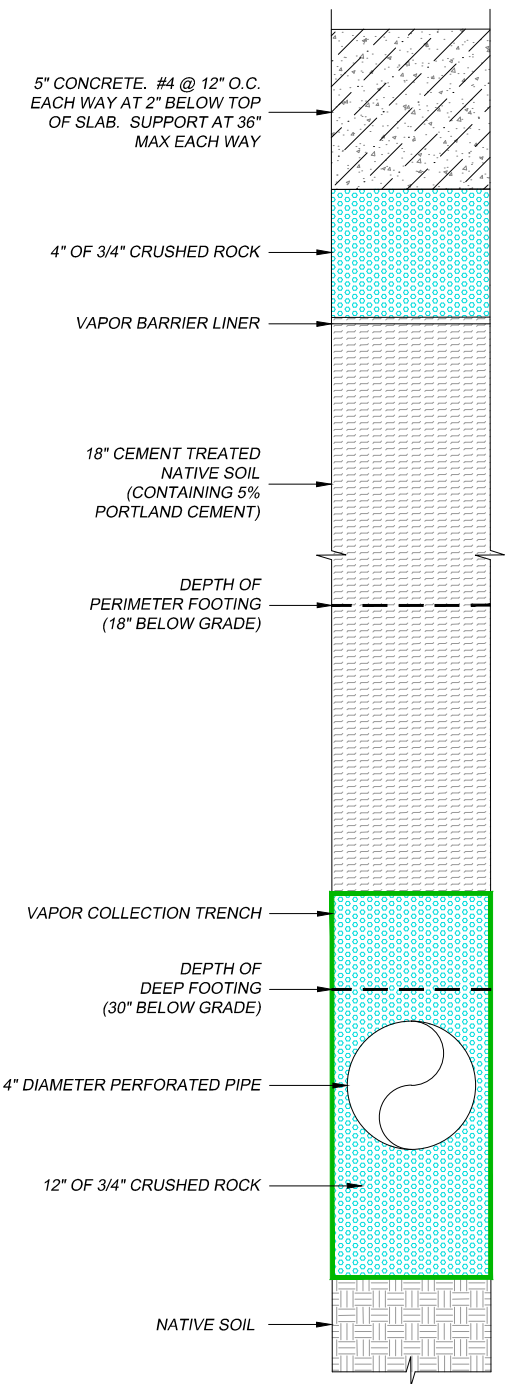
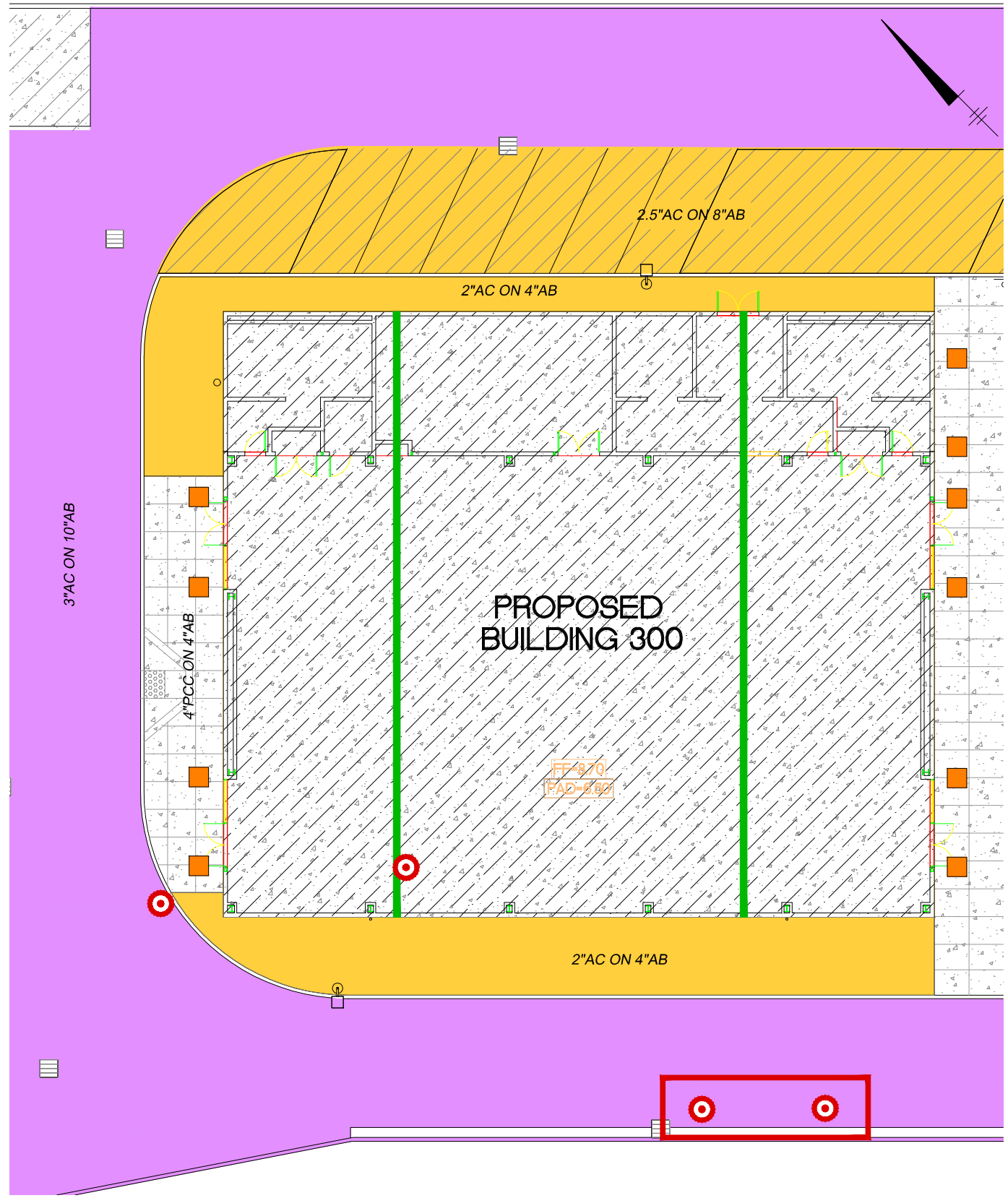


1009 66TH AVENUE, OAKLAND, CALIFORNIA

SOIL VAPOR LOCATIONS AND ANAYTICAL RESULTS

FIGURE **2**

CITY: EMERYVILLE, CA DIV: GROUP: ENV: CAD DB: J. HARRIS
 C:\Users\jharris\Desktop\ENV\CAD\RETURN-TO-EMERYVILLE_CALEM009155\0017000001\DWG\EM009155B04.dwg LAYOUT: 3 SAVED: 9/19/2014 9:56 AM ACADVER: 18.15 (LMS TECH) PAGES: 3 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 9/19/2014 10:24 AM BY: HARRIS, JESSICA



- LEGEND**
- SOIL SAMPLE FAILED PCB CRITERIA OF 0.130 mg/kg
 - LOCATION OF PCB AFFECTED SOIL ENCAPSULATED FROM APPROXIMATELY 3 TO 8 FEET BELOW FINISHED GRADE
 - NEW CONCRETE SLAB (6" REINFORCED PCC ON 6" CLASS 2 AB ON 6" RECOMPACTED SUBGRADE (90%)) PER GEOTECHNICAL REPORT
 - NEW CONCRETE SLAB (4" REINFORCED PCC ON 4" CLASS 2 AB ON 6" RECOMPACTED SUBGRADE (90%)) PER GEOTECHNICAL REPORT
 - 3" AC ON 10" AB NEW AC PAVEMENT-TRAFFIC SECTION (6" AC ON 6" CLASS 2 AB ON 6" RECOMPACTED SUBGRADE (95%)) PER GEOTECHNICAL REPORT
 - 2.5" AC ON 8" AB NEW AC PAVEMENT-PARKING SECTION (6" AC ON 4" CLASS 2 AB ON 6" RECOMPACTED SUBGRADE (95%)) PER GEOTECHNICAL REPORT
 - 2" AC ON 4" AB NEW AC PAVEMENT-PEDESTRIAN SECTION (2" AC ON 4" CLASS 2 AB ON 6" RECOMPACTED SUBGRADE (95%)) PER GEOTECHNICAL REPORT
 - DEEP FOOTING
 - VAPOR COLLECTION TRENCH
 - mg/kg MILLIGRAMS PER KILOGRAM

SOURCES: UNDERWOOD & ROSENBLUM, INC.
 K2A ARCHITECTURE + INTERIORS
 GRADING AND PAVING PLANS

PROPOSED CHARTER SCHOOL SITE
 1009 66TH AVENUE, OAKLAND, CALIFORNIA

PROPOSED BUILDING 300 VAPOR SYSTEM CONCEPTUAL LAYOUT

FIGURE 3

ARCADIS

Appendix A

ACDEH Work Plan Approval
Letter dated July 24, 2014



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

July 24, 2014

Stephen Boyd
Pacific Electric Motor Company
137 Fiesta Circle
Orinda, CA 94563-4350

Mala Batra
Aspire Public Schools
1001 22nd Avenue, Suite 100
Oakland, CA 94606
(Sent via E-mail to: Mala.Batra@aspirepublicschools.org)

Richard R. Anderson
Modad Properties, LLC
561 4th Street
Oakland, CA 94607-3558

Subject: Conditional Work Plan Approval for Fuel Leak Case No. RO0000411 and GeoTracker Global ID T0600101950, Pacific Electric Motors, 1009 66th Avenue, Oakland, CA 94621

Dear Responsible Parties:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above-referenced site including the recently submitted document entitled, "*Vapor Intrusion Evaluation Work Plan, Former Pacific Electric Motors Site, 1009 66th Avenue, Oakland, California*" dated July 11, 2014 (Work Plan). The Work Plan, which was prepared on your behalf by ARCADIS, presents plans to conduct soil vapor sampling for a proposed gymnasium building and indoor air sampling for existing Building 200.

Site Background

A soil vapor extraction/air sparging system operated at the site until September 2010. Following shutdown of the system, groundwater samples were collected for four quarters from September 2010 until September 2011. In correspondence dated December 9, 2013, ACEH requested additional groundwater monitoring. A groundwater sampling event was conducted on January 7, 2014 in response to the ACEH request.

During the January 7, 2014 groundwater sampling event, groundwater samples were collected from one shallow zone monitoring well (NW-2S), four intermediate zone monitoring wells (NW-2I, ASMW-5I, AS-4I, and AS-6I), and three deep zone monitoring wells (ASMW-5D, MW-4, and NW-2D). Groundwater sampling results generally indicated that the concentrations of petroleum hydrocarbons in groundwater have decreased since operation of the soil vapor extraction/air sparging system was stopped in September 2011.

A total of 15 monitoring wells and 16 soil vapor extraction and air sparging wells were destroyed between September 13 and November 15, 2010. Wells AS-1I and AS-3I were destroyed during development of the site in 2010. All groundwater monitoring wells within the footprint of the proposed gymnasium were destroyed. Therefore, no groundwater samples were collected from the area of the proposed gymnasium during the January 7, 2014 sampling event. In order to assess the potential for vapor intrusion to the proposed gymnasium building, soil vapor sampling is necessary. The need to complete a vapor intrusion assessment was discussed during a telephone conference on June 25, 2014 between Jerry Wickham of

ACEH, Tim Simon and Charles Robitaille representing Aspire Public Schools, Ron Goloubow of ARCADIS, and Carmen Santos of the U.S. Environmental Protection Agency.

Following shutdown of the soil vapor extraction/air sparging system in September 2010, no soil vapor samples were collected to confirm the effectiveness of the remediation. The need to complete confirmation sampling for existing Building 200 was also discussed during the June 25, 2014 telephone conference.

Conditional Work Plan Approval for Proposed Gymnasium Sampling

The proposed scope of work in the Work Plan is not adequate to complete the vapor intrusion assessments. However, we understand that Aspire Public Schools wants to conduct the assessment for the proposed gymnasium as soon as possible to prevent potential delays in completion of the gymnasium. In order to move the assessment for the proposed gymnasium site forward, ACEH will conditionally approve the scope of work for soil vapor sampling at the site of the proposed gymnasium provided that the technical comments below are incorporated during the assessment. Please present the results of the soil vapor sampling for the proposed gymnasium site including all items identified in the technical comments below in a "*Soil Vapor Intrusion Assessment Report for Proposed Gymnasium*," no later than October 24, 2014.

Indoor Air Sampling for Existing Building Is Not Approved

The Work Plan proposes indoor air sampling as the only investigation activity for Building 200. This approach does not follow the step by step guidance in the California Department of Toxic Substances, "*Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to indoor air (Vapor Intrusion Guidance)*," dated October 2011 and is not approved for implementation. We request that you submit a revised Work Plan that incorporates the step by step approach and also uses multiple lines of evidence in making the vapor intrusion assessment. Such an approach would likely utilize soil vapor sampling outside the existing building, sub-slab sampling beneath the building, and crawl space sampling prior to the collection of indoor air samples. Please submit a revised Work Plan to complete the vapor intrusion assessment for existing Building 200 no later than September 10, 2014.

TECHNICAL COMMENTS

1. **Soil Vapor Sample Locations.** The Work Plan currently proposes two soil vapor sampling locations within the footprint of the proposed gymnasium. In addition to two proposed soil probe locations within the footprint of the proposed gymnasium, we request that soil vapor probes also be installed at three additional locations (SVP-3 through SVP-5) that are shown on the attached site plan showing Proposed Soil Vapor Point Locations.
2. **Equilibration Time.** The purge volume test, leak test, and soil vapor sample collection should be conducted at least 48 hours after vapor probe installation.

3. **Confirmation of Naphthalene Analyses.** Due to the difficulties noted in the California Department of Toxic Substances and Regional Water Quality Control Board, "*Advisory Active Soil Gas Investigations*," dated April 2012 to collect and analyze soil vapor samples for naphthalene, we request that one of the proposed soil vapor samples (SVP-1) be collected and analyzed using EPA Method TO-17 in order to confirm the analysis using EPA Method TO-15. The method for sample collection and analysis using EPA Method TO-17 must be consistent with those described in the "*Advisory Active Soil Gas Investigations*," dated April 2012.
4. **Soil Vapor Analytes.** We request that all soil vapor samples also be analyzed for methane, carbon dioxide, and oxygen using ASTM D1946.
5. **Number of Sampling Events and Decommissioning of Soil Vapor Probes.** Section 5.4 of the Work Plan indicates that the soil vapor probes will be decommissioned following completion of data analysis and any additional sampling that may be needed. The soil vapor probes are not to be decommissioned unless ACEH concurs that no further sampling is necessary.
6. **Passive Sampling Devices.** Section 5.5 of the Work Plan indicates that passive sampling devices will be installed in the case of low or no flow at the soil vapor sampling points. If soil vapor samples cannot be collected due to no or low flow, we request that you submit an alternate proposal for soil vapor sampling to ACEH. Passive soil vapor sampling is not approved for the site.

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:

- **September 12, 2014** – Work Plan for Vapor Intrusion Assessment of Existing Building
File to be named: WP_R_yyyy-mm-dd RO0411
- **October 24, 2014** – Soil Vapor Intrusion Assessment Report for Proposed Gymnasium
File to be named: WP_R_yyyy-mm-dd RO0411

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.

Responsible Parties
RO0000411
July 24, 2014
Page 4

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org. Online case files are available for review at the following website: <http://www.acgov.org/aceh/index.htm>.

Sincerely,

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

Attachments: Proposed Soil Vapor Point Locations (Figure 3)
Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

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

Carmen Santos, USEPA Region 9 (LND-4-1), 75 Hawthorne Street, San Francisco, CA 94105,
(*Sent via E-mail to: santos.carmen@epa.gov*)

Tim Simon, Aspire Public Schools (*Sent via E-mail to: Tim.Simon@aspirepublicschools.org*)

Erica Kalve, ARCADIS, 1900 Powell Street, 12th Floor, Emeryville, CA 94608-1827 (*Sent via E-mail to: Erica.Kalve@arcadis-us.com*)

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

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/).

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.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	REVISION DATE: May 15, 2014
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	SUBJECT: 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
 - 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 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.

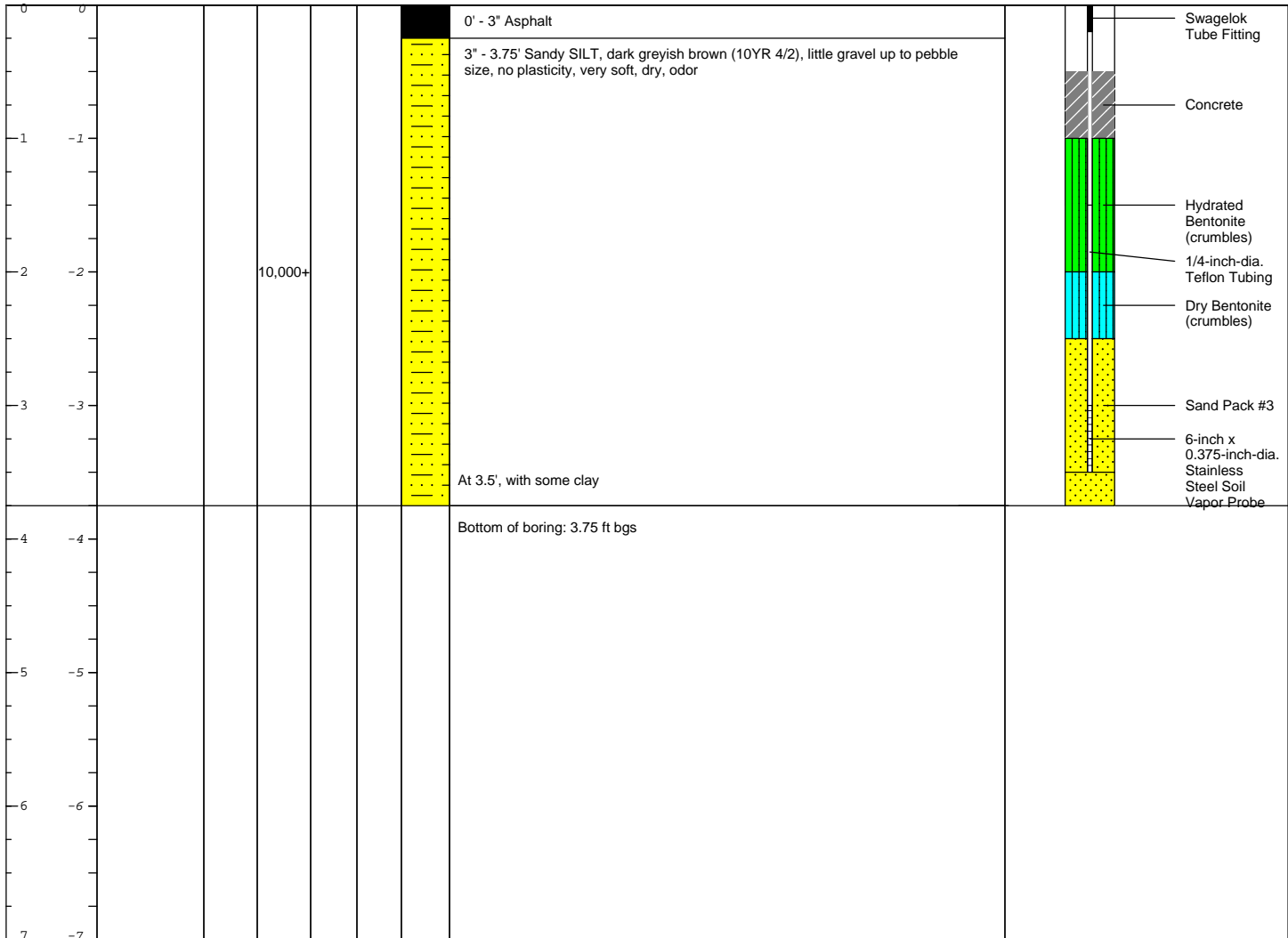
ARCADIS

Appendix **B**

Boring and Soil Vapor Probe
Construction Logs

Date Start/Finish: 8/21/2014 Drilling Company: Gregg Drilling Driller's Name: David / Daniel Drilling Method: Hollow Stem Sampling Method: NA Rig Type: Direct Push Boring Diameter: 4-inch	Latitude (NAD83): NA Longitude (NAD83): NA Casing Elevation: NA Borehole Depth: NA Surface Elevation: NA Descriptions By: Adam Kinnard Reviewed By: Erica Kalve, P.G.	Well/Boring ID: SVP-1 Client: Aspire College Prep Location: 1009 66th Ave. Oakland, California
--	--	--

DEPTH	ELEVATION	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Blows/6"	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	Remarks: Abbreviations: amsl = above mean sea level; bgs = feet below ground surface; dia. = diameter; ft = feet; PID = photoionization detector; ppm = parts per million; NA = Not Applicable
--	---

Date Start/Finish: 8/21/2014 Drilling Company: Gregg Drilling Driller's Name: David / Daniel Drilling Method: Hollow Stem Sampling Method: NA Rig Type: Direct Push Boring Diameter: 4-inch	Latitude (NAD83): NA Longitude (NAD83): NA Casing Elevation: NA Borehole Depth: NA Surface Elevation: NA Descriptions By: Adam Kinnard Reviewed By: Erica Kalve, P.G.	Well/Boring ID: SVP-2 Client: Aspire College Prep Location: 1009 66th Ave. Oakland, California
--	--	--

DEPTH	ELEVATION	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Blows/6"	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0							0' - 3" Asphalt	
-1	-1							3" - 3.5' Sandy SILT, dark gray (7.5YR 4/1), some gravel up to pea size, no plasticity, very soft, dry, odor	
-2	-2							At 3.0', with little/trace gravel (small pebbles), darker in color / more brown	
-3	-3			1400+				3.5' - 3.75' CLAY, dark greenish gray (GLE Y 1 4/1), medium to high plasticity, soft, dry to slightly moist, odor	
-4	-4			10,000+				Bottom of boring: 3.75 ft bgs	
-5	-5			10,000+					
-6	-6								
-7	-7								

	Remarks: Abbreviations: amsl = above mean sea level; bgs = feet below ground surface; dia. = diameter; ft = feet; PID = photoionization detector; ppm = parts per million; NA = Not Applicable
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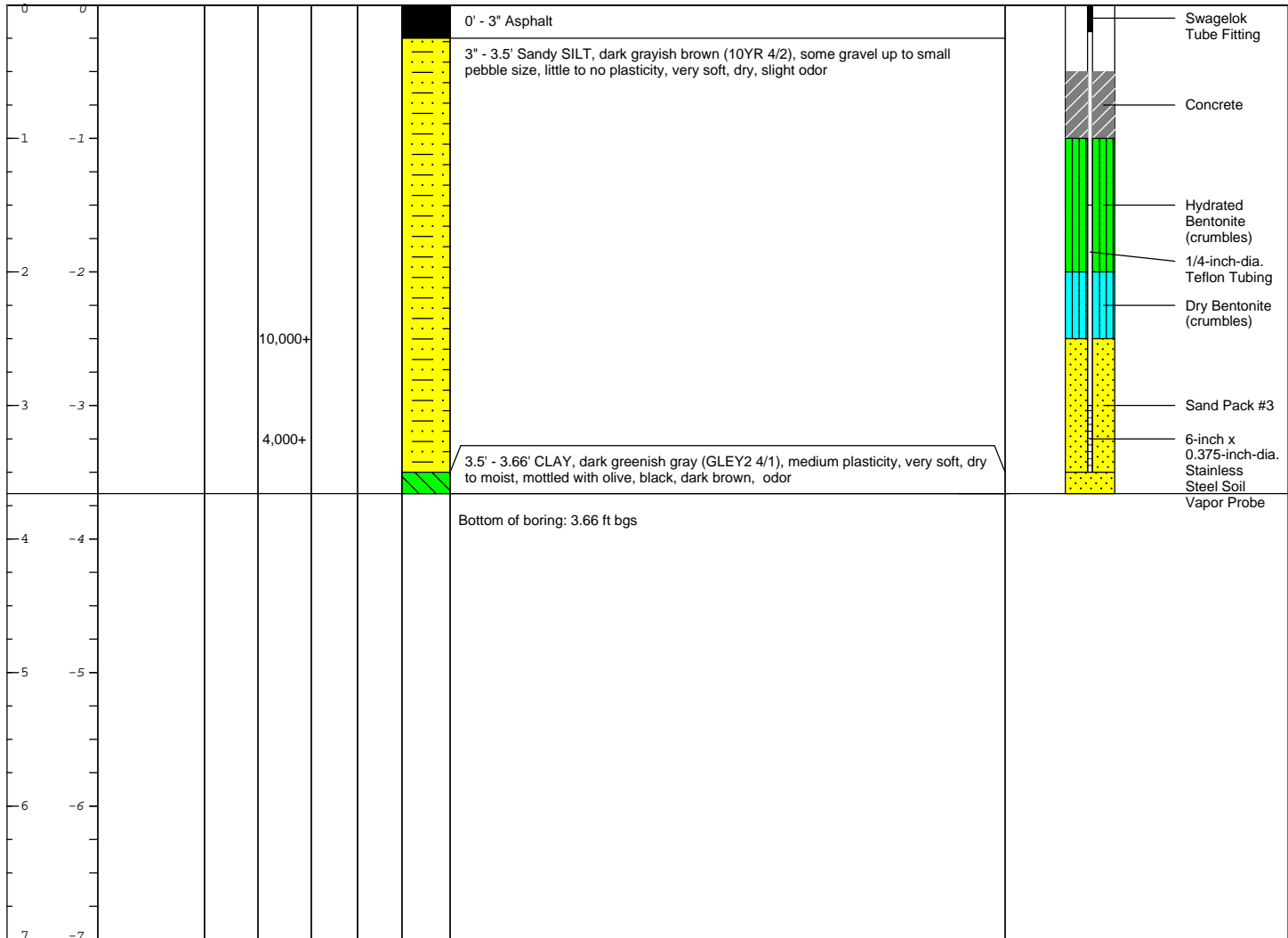
Date Start/Finish: 8/21/2014 Drilling Company: Gregg Drilling Driller's Name: David / Daniel Drilling Method: Hollow Stem Sampling Method: NA Rig Type: Direct Push Boring Diameter: 4-inch	Latitude (NAD83): NA Longitude (NAD83): NA Casing Elevation: NA Borehole Depth: NA Surface Elevation: NA Descriptions By: Adam Kinnard Reviewed By: Erica Kalve, P.G.	Well/Boring ID: SVP-3 Client: Aspire College Prep Location: 1009 66th Ave. Oakland, California
--	--	--

DEPTH	ELEVATION	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Blows/6"	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0							0' - 3" Asphalt	
0	0							3" - 3.5' Sandy SILT, dark grayish brown (10YR 4/2), some gravel up to pebble size, no plasticity, very soft, dry, odor	
-1	-1			10,000+					
-2	-2			10,000+					
-3	-3			10,000+					
-3	-3			200+				3.5' - 3.75' CLAY, dark greenish gray (GLEY 1 4/1), medium plasticity, soft, dry to moist, odor	
-4	-4							Bottom of boring: 3.75 ft bgs	
-5	-5								
-6	-6								
-7	-7								

	Remarks: Abbreviations: amsl = above mean sea level; bgs = feet below ground surface; dia. = diameter; ft = feet; PID = photoionization detector; ppm = parts per million; NA = Not Applicable
--	---

Date Start/Finish: 8/21/2014 Drilling Company: Gregg Drilling Driller's Name: David / Daniel Drilling Method: Hollow Stem Sampling Method: NA Rig Type: Direct Push Boring Diameter: 4-inch	Latitude (NAD83): NA Longitude (NAD83): NA Casing Elevation: NA Borehole Depth: NA Surface Elevation: NA Descriptions By: Adam Kinnard Reviewed By: Erica Kalve, P.G.	Well/Boring ID: SVP-4 Client: Aspire College Prep Location: 1009 66th Ave. Oakland, California
--	--	--

DEPTH	ELEVATION	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Blows/6"	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
-------	-----------	-----------------	-----------------	---------------------	----------	-----------	-----------------	---------------------------	--------------------------



	Remarks: Abbreviations: amsl = above mean sea level; bgs = feet below ground surface; dia. = diameter; ft = feet; PID = photoionization detector; ppm = parts per million; NA = Not Applicable
--	---

Date Start/Finish: 8/21/2014 Drilling Company: Gregg Drilling Driller's Name: David / Daniel Drilling Method: Hollow Stem Sampling Method: NA Rig Type: Direct Push Boring Diameter: 4-inch	Latitude (NAD83): NA Longitude (NAD83): NA Casing Elevation: NA Borehole Depth: NA Surface Elevation: NA Descriptions By: Adam Kinnard Reviewed By: Erica Kalve, P.G.	Well/Boring ID: SVP-5 Client: Aspire College Prep Location: 1009 66th Ave. Oakland, California
--	--	--

DEPTH	ELEVATION	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Blows/6"	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
-------	-----------	-----------------	-----------------	---------------------	----------	-----------	-----------------	---------------------------	--------------------------

0	0							0' - 3" Asphalt	
-1	-1							3" - 3.5' Silty SAND (40/60), gray (5Y 5/1), some gravel up to large pebble, very fine- to fine-grained sand, very loose, dry, no odor	
-2	-2							3.0' - 3.5' Sandy SILT, some gravel up to small pebble, low to no plasticity, very soft, dry, slight odor (not petroleum, but other)	
-3	-3			10,000+				3.5' - 3.75' CLAY, dark greenish gray (GLE 1 4/1), medium to high plasticity, very soft, moist, mottled with olive, black, slight petroleum odor	
-4	-4			4,000+				Bottom of boring: 3.75 ft bgs	
-5	-5								
-6	-6								
-7	-7								

	Remarks: Abbreviations: amsl = above mean sea level; bgs = feet below ground surface; dia. = diameter; ft = feet; PID = photoionization detector; ppm = parts per million; NA = Not Applicable
--	---

ARCADIS

Appendix C

Soil Vapor Sample Collection
Logs

Soil Vapor Probe Sampling Data

Field Staff: _____

Date	Canister Number	Manifold Number	Leak Test Start Time	Leak Test Start Pressure (psi) ^{inHg}	Leak Test Finish Time	Leak Test Finish Pressure (psi) ^{inHg}	Helium Leak Test Concentration (%He)	Sample Start Time	Sample Start Pressure (psi) ^{inHg}	Sample Finish Time	Sample Final Pressure (psi) ^{inHg}	Helium Minimum (%He)	Helium Maximum (%He)	Purge Volume (mL)	PID Reading (ppmv)
	13846	100210	10:00	-19.5	10:05	-19.5								3x / 1390	5.8
														5x →	4.4
														7x →	3.3
8/26	33559	100441	11:00	-19	11:05	-19	0	11:35	-30	12:20	-5	12	20	1390	6.3
	13670	100212	11:45	-18	11:50	-18	2.3 *	12:57	-15	13:10	-5	15	20	1390	14.0
			see above					13:27	-30	14:38	-5	15	20	1390	4.0
	5727	100022	14:45	-17	14:50	-17	0	15:09	-29	15:54	-5	10	20	1390	0.3
	4380	40776	16:10	-23	16:15	-23	1.5 *	16:24	-30	17:24	-5	15	20	1390	1.3

Notes

- psi pounds per square inch
- %He percent helium
- mL milliliter
- ppmv parts per million by volume

* He detections correspond with high CEC readings (CH₄)

Soil Vapor Sampling Log

Personnel: _____ Landfill Gas Meter: _____

Site: _____

Well	Date	Time	Volume Purged	Approx. # of void volumes	CEL CH ₄	CO ₂	O ₂	He (in line with sample) ⁴²⁵	He (in shroud) ^{P19}	Comments
SUP-18	8/26	1015	1390	3	4	23	18.3	0	5.8	
		1020		5	0	13	19.4	0	4.4	
		1025		7	0	6	19.7	0	3.3	
5		1257	1390	3	0	1	18.2	0	0.3	
4		1327	1390	3	100+	12	13.0	0	14.0	
3		1509	1390	3	0	0	19.6	0	0.3	
2		1624	1390	3	71	19	13	0	1.3	

* As shown on site map.

TO-17 SAMPLE COLLECTION



Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922.

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FOLSOM, CA 95630
(916) 985-1000 FAX (916) 985-1020**

Page _____ of _____

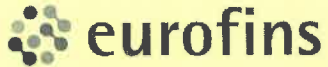
Project Manager Erica Kalve
 Collected by: (Print and Sign) Josh Mitchell
 Company ARCADIS Email Erica.Kalve@arcadis-us.com
 Address 10 SMITH RANCH RD City San Rafael State CA Zip 94903
 Phone (415) 491-4530 Fax _____

Project Info: P.O. # _____ Project # <u>EM009ISS.0017</u> Project Name <u>Former Pacific Electric Motors</u>	Turn Around Time: <input type="checkbox"/> Normal <input type="checkbox"/> Rush _____ <i>specify</i>	Reporting Units: <input type="checkbox"/> ppmv <input type="checkbox"/> ppbv <input type="checkbox"/> µg/m3 <input type="checkbox"/> mg/m3	Indoor Air Outdoor Air Soil Vapor Other ()

Lab I.D.	Field Sample I.D. (Location)	Engraved or Stamped Tube #	Date of Collection (mm/dd/yy)	Start Time (hr:min)	End Time (hr:min)	Pre-Test Flow Rate	Post-Test Flow Rate	Volume	Indoor/Outdoor		Indoor Air	Outdoor Air	Soil Vapor	Other ()
									% RH	Temp				
	SUP-5	60143682	08/26/14	12:20	12:26	300 ml/min	"	60ml			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	SUP-4	60143491		13:11	13:11						<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	SUP-1	60155340		14:38	14:38						<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	SUP-3	60139991		15:54	15:54						<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	SUP-2	60145574		17:24	17:24						<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	FIELD BLANK	60143155		16:58	NA	NA	NA	NA			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
											<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
											<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
											<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Relinquished by: (signature) <u>Josh Mitchell</u> Date/Time <u>8/26/14 1800</u>	Received by: (signature) <u>Fed Ex</u> Date/Time _____	Notes:
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____	
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____	

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
					Yes No None	



Air Toxics

Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

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FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page ___ of ___

Project Manager Erica Kalve
Collected by: (Print and Sign) Josh Marshall
Company ARCADIS Email Erica.Kalve@arcadis-us.com
Address 100 Smith Ranch Rd City San Rafael State CA Zip 94903
Phone 415.491.4530 Fax

Project Info:
P.O. #
Project # EM009155-0017
Project Name Electric Motors

Turn Around Time:
Normal
Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas:
N2 He

Table with columns: Lab I.D., Field Sample I.D. (Location), Can #, Date of Collection, Time of Collection, Analyses Requested, Canister Pressure/Vacuum (Initial, Final, Receipt, Final (psi)). Rows include Field Blank, SUP-1, SUP-2, SUP-3, SUP-4, SUP-5.

Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time
Notes:

Lab Use Only
Shipper Name Air Bill # Temp (°C) Condition Custody Seals Intact? Work Order #
Yes No None

ARCADIS

Appendix **D**

Laboratory Analytical Reports

8/29/2014
Mr. Wayne Hung
Arcadis U.S., Inc.
2550 N. First Street
Suite 200
San Jose CA 95131

Project Name: Former Pacific Electric Motors
Project #: EM009155.0017
Workorder #: 1408437

Dear Mr. Wayne Hung

The following report includes the data for the above referenced project for sample(s) received on 8/27/2014 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-17 VI 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: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kyle Vagadori
Project Manager

WORK ORDER #: 1408437

Work Order Summary

CLIENT: Mr. Wayne Hung
 Arcadis U.S., Inc.
 2550 N. First Street
 Suite 200
 San Jose, CA 95131

BILL TO: Accounts Payable
 Arcadis U.S., Inc.
 630 Plaza Drive
 Suite 600
 Highlands Ranch, CO 80129

PHONE: 650-469-7230

P.O. # EM009155.0017

FAX: 650-469-7235

PROJECT # EM009155.0017 Former Pacific Electric

DATE RECEIVED: 08/27/2014

CONTACT: Motors
 Kyle Vagadori

DATE COMPLETED: 08/29/2014

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
01A	SVP-5	Modified TO-17 VI
02A	SVP-4	Modified TO-17 VI
03A	SVP-1	Modified TO-17 VI
04A	SVP-3	Modified TO-17 VI
05A	SVP-2	Modified TO-17 VI
06A	FIELD BLANK	Modified TO-17 VI
07A	Lab Blank	Modified TO-17 VI
08A	CCV	Modified TO-17 VI
09A	LCS	Modified TO-17 VI
09AA	LCSD	Modified TO-17 VI

CERTIFIED BY: 

 Technical Director

DATE: 08/29/14

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-13-6, UT NELAP CA009332014-5, 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.
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LABORATORY NARRATIVE
Modified EPA Method TO-17 (VI Tubes)
Arcadis U.S., Inc.
Workorder# 1408437

Six TO-17 VI Tube samples were received on August 27, 2014. The laboratory performed the analysis via modified EPA Method TO-17 using GC/MS in the full scan mode. TO-17 'VI' sorbent tubes are thermally desorbed onto a secondary trap. The trap is thermally desorbed to elute the components into the GC/MS system for compound separation and detection.

A modification that may be applied to EPA Method TO-17 at the client's discretion is the requirement to transport sorbent tubes at 4 deg C. Laboratory studies demonstrate a high level of stability for VOCs on the TO-17 'VI' tube at room temperature for periods of up to 14 days. Tubes can be shipped to and from the field site at ambient conditions as long as the 14-day sample hold time is upheld. Trip blanks and field surrogate spikes are used as additional control measures to monitor recovery and background contribution during tube transport.

Since the TO-17 VI application significantly extends the scope of target compounds addressed in EPA Method TO-15 and TO-17, the laboratory has implemented several method modifications outlined in the table below. Specific project requirements may over-ride the laboratory modifications.

<i>Requirement</i>	<i>TO-17</i>	<i>ATL Modifications</i>
Initial Calibration	%RSD$\leq 30\%$ with 2 allowed out up to 40%	VOC list: %RSD$\leq 30\%$ with 2 allowed out up to 40% SVOC list: %RSD$\leq 30\%$ with 2 allowed out up to 40%
Daily Calibration	%D for each target compound within +/-30%.	Fluorene, Phenanthrene, Anthracene, Fluoranthene, and Pyrene within +/-40%D
Audit Accuracy	70-130%	Second source recovery limits for Fluorene, Phenanthrene, Anthracene, Fluoranthene, and Pyrene = 60-140%.
Distributed Volume Pairs	Collection of distributed volume pairs required for monitoring ambient air to insure high quality.	If site is well-characterized or performance previously verified, single tube sampling may be appropriate. Distributed pairs may be impractical for soil gas collection due to configuration and volume constraints.

Receiving Notes

A Temperature Blank was included with the shipment. Temperature was measured and was not within 4±2 °C. Coolant in the form of blue ice was present. Analysis proceeded.

Analytical Notes

A sampling volume of 0.060 L was used to convert ng to ug/m³ for the associated Lab Blank.

Definition of Data Qualifying Flags

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

- B - Compound present in blank (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-17

Client Sample ID: SVP-5

Lab ID#: 1408437-01A

No Detections Were Found.

Client Sample ID: SVP-4

Lab ID#: 1408437-02A

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	17	1.1	19

Client Sample ID: SVP-1

Lab ID#: 1408437-03A

No Detections Were Found.

Client Sample ID: SVP-3

Lab ID#: 1408437-04A

No Detections Were Found.

Client Sample ID: SVP-2

Lab ID#: 1408437-05A

No Detections Were Found.

Client Sample ID: FIELD BLANK

Lab ID#: 1408437-06A

No Detections Were Found.



Air Toxics

Client Sample ID: SVP-5

Lab ID#: 1408437-01A

EPA METHOD TO-17

File Name:	18082710	Date of Extraction: NA	Date of Collection: 8/26/14 12:20:00 PM
Dil. Factor:	1.00	Date of Analysis: 8/27/14 08:57 PM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	17	Not Detected	Not Detected

Air Sample Volume(L): 0.0600
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	75	50-150



Air Toxics

Client Sample ID: SVP-4

Lab ID#: 1408437-02A

EPA METHOD TO-17

File Name:	18082711	Date of Extraction: NA	Date of Collection: 8/26/14 1:11:00 PM
Dil. Factor:	1.00	Date of Analysis: 8/27/14 09:39 PM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	17	1.1	19

Air Sample Volume(L): 0.0600
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	76	50-150



Air Toxics

Client Sample ID: SVP-1

Lab ID#: 1408437-03A

EPA METHOD TO-17

File Name:	18082712	Date of Extraction: NA	Date of Collection: 8/26/14 2:38:00 PM
Dil. Factor:	1.00	Date of Analysis: 8/27/14 10:21 PM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	17	Not Detected	Not Detected

Air Sample Volume(L): 0.0600

Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	65	50-150



Air Toxics

Client Sample ID: SVP-3

Lab ID#: 1408437-04A

EPA METHOD TO-17

File Name:	18082713	Date of Extraction: NA	Date of Collection: 8/26/14 3:54:00 PM
Dil. Factor:	1.00	Date of Analysis: 8/27/14 11:10 PM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	17	Not Detected	Not Detected

Air Sample Volume(L): 0.0600

Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	71	50-150



Air Toxics

Client Sample ID: SVP-2

Lab ID#: 1408437-05A

EPA METHOD TO-17

File Name:	18082714	Date of Extraction: NA	Date of Collection: 8/26/14 5:24:00 PM
Dil. Factor:	1.00	Date of Analysis: 8/27/14 11:52 PM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	17	Not Detected	Not Detected

Air Sample Volume(L): 0.0600

Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	64	50-150



Air Toxics

Client Sample ID: FIELD BLANK

Lab ID#: 1408437-06A

EPA METHOD TO-17

File Name:	18082709	Date of Extraction: NA	Date of Collection: 8/26/14
Dil. Factor:	1.00	Date of Analysis: 8/27/14 08:16 PM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	17	Not Detected	Not Detected

Air Sample Volume(L): 0.0600

Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	70	50-150



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1408437-07A

EPA METHOD TO-17

File Name:	18082708	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/27/14 06:19 PM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	17	Not Detected	Not Detected

Air Sample Volume(L): 0.0600
Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Naphthalene-d8	68	50-150



Air Toxics

Client Sample ID: CCV

Lab ID#: 1408437-08A

EPA METHOD TO-17

File Name:	18082702	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/27/14 12:16 PM	

Compound	%Recovery
Naphthalene	91

Air Sample Volume(L): 1.00
Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Naphthalene-d8	85	50-150



Air Toxics

Client Sample ID: LCS
Lab ID#: 1408437-09A
EPA METHOD TO-17

File Name:	18082707	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/27/14 03:56 PM	

Compound	%Recovery	Method Limits
Naphthalene	90	70-130

Air Sample Volume(L): 1.00
Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Naphthalene-d8	84	50-150



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1408437-09AA

EPA METHOD TO-17

File Name:	18082703	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/27/14 12:58 PM	

Compound	%Recovery	Method Limits
Naphthalene	86	70-130

Air Sample Volume(L): 1.00
Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Naphthalene-d8	78	50-150

TO-17 SAMPLE COLLECTION



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 FOLSOM, CA 95630
 (916) 985-1000 FAX (916) 985-1021

Page ___ of ___

Project Manager Erica Kalve
 Collected by: (Print and Sign) Josh Marshall
 Company AIRCADIS Email Erica.Kalve@aircadis.com
 Address 100 SMITH RANCH RD City San Rafael State CA Zip 94903
 Phone (415) 441-4530 Fax _____

Project Info:
 P.O. # _____
 Project # EM007155.0017
 Project Name Former Pacific Electric Motors

Turn Around Time:
 Normal
 Rush

Reporting Units:
 ppmv
 ppbv
 ug/m3
 mg/m3

Lab I.D.	Field Sample I.D. (Location)	Engraved or Stamped Tube #	Date of Collection (mm/dd/yr)	Start Time (hr:min)	End Time (hr:min)	Pre-Test Flow Rate	Post-Test Flow Rate	Volume	Indoor/Outdoor		Indoor Air	Outdoor Air	Sol. Vapor	Other
									% RH	Temp				
01A	SUP-5	601431032	8/26/14	12:20	12:28	200 mL/min		6.0 mL			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
02A	SUP-4	601431491		13:11	13:11						<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
03A	SUP-1	60155340		14:38	14:38						<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
04A	SUP-3	60139991		15:54	15:54						<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
05A	SUP-2	60146574		17:24	17:24						<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
06A	FIELD BLANK	601431155	✓	16:58	NA	NA	NA	NA			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Relinquished by: (signature) Josh Marshall Date/Time 8/26/14 1800
 Received by: (signature) Fed Ex Date/Time _____
 Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) Josh Marshall Date/Time 8/26/14 0547
 Relinquished by: (signature) _____ Date/Time _____
 Received by: (signature) _____ Date/Time _____

Notes: _____

Temp (°C) 23.2 Condition SPK Custody Seals Intact? None Work Order # 1413431

Lab Use Only: Shipper Name FEDEX Air Bill # _____

9/4/2014
Mr. Wayne Hung
Arcadis U.S., Inc.
2550 N. First Street
Suite 200
San Jose CA 95131

Project Name: Former Pacific Electric Motors
Project #: EM009155.0017
Workorder #: 1408471A

Dear Mr. Wayne Hung

The following report includes the data for the above referenced project for sample(s) received on 8/28/2014 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: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kyle Vagadori
Project Manager

WORK ORDER #: 1408471A

Work Order Summary

CLIENT:	Mr. Wayne Hung Arcadis U.S., Inc. 2550 N. First Street Suite 200 San Jose, CA 95131	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	650-469-7230	P.O. #	EM009155.0017
FAX:	650-469-7235	PROJECT #	EM009155.0017 Former Pacific Electric
DATE RECEIVED:	08/28/2014	CONTACT:	Motors Kyle Vagadori
DATE COMPLETED:	09/04/2014		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	Field Blank	Modified TO-15	11.2 "Hg	4.7 psi
01B	Field Blank	Modified TO-15	11.2 "Hg	4.7 psi
02A	SVP-1	Modified TO-15	6.5 "Hg	5.1 psi
03A	SVP-2	Modified TO-15	6.3 "Hg	4.7 psi
03B	SVP-2	Modified TO-15	6.3 "Hg	4.7 psi
04A	SVP-3	Modified TO-15	6.7 "Hg	5.1 psi
04B	SVP-3	Modified TO-15	6.7 "Hg	5.1 psi
05A	SVP-4	Modified TO-15	0.8 "Hg	4.8 psi
06A	SVP-5	Modified TO-15	7.8 "Hg	5.1 psi
06B	SVP-5	Modified TO-15	7.8 "Hg	5.1 psi
07A	Lab Blank	Modified TO-15	NA	NA
07B	Lab Blank	Modified TO-15	NA	NA
07C	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
08B	CCV	Modified TO-15	NA	NA
08C	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
09C	LCS	Modified TO-15	NA	NA
09CC	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

DATE: 09/04/14

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-13-6, UT NELAP CA009332014-5, 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 Full Scan/SIM
Arcadis U.S., Inc.
Workorder# 1408471A

Six 6 Liter Summa Canister (SIM Certified) samples were received on August 28, 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	$\leq 30\%$ 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

Sample collection date was incomplete on the Chain of Custody for samples Field Blank, SVP-1, SVP-2, SVP-3, SVP-4 and SVP-5. The year of collection was assumed to be 2014.

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.

The results for each sample in this report with the exception of samples SVP-1 and SVP-4 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.

Samples SVP-1 and SVP-4 were transferred from SIM/Low Level analysis to full scan TO-15 due to high levels of target/non-target compounds.

Dilution was performed on samples SVP-1, SVP-2, SVP-3 and SVP-5 due to the presence of high level target species.

Dilution was performed on sample SVP-4 due to the presence of high level non-target species.

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: Field Blank

Lab ID#: 1408471A-01A

No Detections Were Found.

Client Sample ID: Field Blank

Lab ID#: 1408471A-01B

No Detections Were Found.

Client Sample ID: SVP-1

Lab ID#: 1408471A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	2.3	95	7.3	300
Ethyl Benzene	2.3	18	10	80
Toluene	2.3	43	8.6	160
m,p-Xylene	2.3	51	10	220
o-Xylene	2.3	18	10	78
Methyl tert-butyl ether	2.3	550	8.3	2000
TPH ref. to Gasoline (MW=100)	110	22000	470	90000

Client Sample ID: SVP-2

Lab ID#: 1408471A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.7	500	5.3	1600
TPH ref. to Gasoline (MW=100)	170	7100	680	29000

Client Sample ID: SVP-2

Lab ID#: 1408471A-03B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.7	2.8	6.0	10
Toluene	0.33	98	1.2	370
Ethyl Benzene	0.33	5.3	1.4	23
m,p-Xylene	0.67	14	2.9	60
o-Xylene	0.33	5.3	1.4	23

Summary of Detected Compounds

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

Client Sample ID: SVP-3

Lab ID#: 1408471A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH ref. to Gasoline (MW=100)	35	3000	140	12000

Client Sample ID: SVP-3

Lab ID#: 1408471A-04B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.35	13	1.2	48
Benzene	0.17	31	0.56	98
Toluene	0.070	27	0.26	100
Ethyl Benzene	0.070	1.8	0.30	7.6
m,p-Xylene	0.14	6.9	0.60	30
o-Xylene	0.070	2.4	0.30	11

Client Sample ID: SVP-4

Lab ID#: 1408471A-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	9.0	780	33	2800
Benzene	9.0	1300	29	4300
Toluene	9.0	240	34	910
Ethyl Benzene	9.0	320	39	1400
m,p-Xylene	9.0	550	39	2400
o-Xylene	9.0	200	39	880
TPH ref. to Gasoline (MW=100)	450	120000	1800	490000

Client Sample ID: SVP-5

Lab ID#: 1408471A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.8	520	5.8	1600
TPH ref. to Gasoline (MW=100)	180	4400	740	18000

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

Client Sample ID: SVP-5

Lab ID#: 1408471A-06B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.8	20	6.6	73
Toluene	0.36	100	1.4	390
Ethyl Benzene	0.36	15	1.6	64
m,p-Xylene	0.73	56	3.2	240
o-Xylene	0.36	19	1.6	83

Client Sample ID: Field Blank

Lab ID#: 1408471A-01A

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

File Name:	v090313	Date of Collection:	8/26/14 5:10:00 PM
Dil. Factor:	2.11	Date of Analysis:	9/3/14 03:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Naphthalene	1.0	Not Detected	5.5	Not Detected
TPH ref. to Gasoline (MW=100)	21	Not Detected	86	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: Field Blank

Lab ID#: 1408471A-01B

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

File Name:	v090313sim	Date of Collection:	8/26/14 5:10:00 PM
Dil. Factor:	2.11	Date of Analysis:	9/3/14 03:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.21	Not Detected	0.76	Not Detected
Benzene	0.10	Not Detected	0.34	Not Detected
Toluene	0.042	Not Detected	0.16	Not Detected
Ethyl Benzene	0.042	Not Detected	0.18	Not Detected
m,p-Xylene	0.084	Not Detected	0.37	Not Detected
o-Xylene	0.042	Not Detected	0.18	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: SVP-1

Lab ID#: 1408471A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	2090409	Date of Collection:	8/26/14 5:24:00 PM
Dil. Factor:	4.59	Date of Analysis:	9/4/14 01:36 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	2.3	95	7.3	300
Ethyl Benzene	2.3	18	10	80
Toluene	2.3	43	8.6	160
m,p-Xylene	2.3	51	10	220
o-Xylene	2.3	18	10	78
Methyl tert-butyl ether	2.3	550	8.3	2000
Naphthalene	9.2	Not Detected	48	Not Detected
TPH ref. to Gasoline (MW=100)	110	22000	470	90000

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	122	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: SVP-2

Lab ID#: 1408471A-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v090316	Date of Collection:	8/26/14 3:54:00 PM
Dil. Factor:	16.7	Date of Analysis:	9/3/14 06:29 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.7	500	5.3	1600
Naphthalene	8.4	Not Detected	44	Not Detected
TPH ref. to Gasoline (MW=100)	170	7100	680	29000

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	94	70-130

Client Sample ID: SVP-2

Lab ID#: 1408471A-03B

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

File Name:	v090316sim	Date of Collection:	8/26/14 3:54:00 PM
Dil. Factor:	16.7	Date of Analysis:	9/3/14 06:29 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.7	2.8	6.0	10
Toluene	0.33	98	1.2	370
Ethyl Benzene	0.33	5.3	1.4	23
m,p-Xylene	0.67	14	2.9	60
o-Xylene	0.33	5.3	1.4	23

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: SVP-3

Lab ID#: 1408471A-04A

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

File Name:	v090314	Date of Collection:	8/26/14 2:38:00 PM
Dil. Factor:	3.48	Date of Analysis:	9/3/14 04:39 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Naphthalene	1.7	Not Detected	9.1	Not Detected
TPH ref. to Gasoline (MW=100)	35	3000	140	12000

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: SVP-3

Lab ID#: 1408471A-04B

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

File Name:	v090314sim	Date of Collection:	8/26/14 2:38:00 PM
Dil. Factor:	3.48	Date of Analysis:	9/3/14 04:39 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.35	13	1.2	48
Benzene	0.17	31	0.56	98
Toluene	0.070	27	0.26	100
Ethyl Benzene	0.070	1.8	0.30	7.6
m,p-Xylene	0.14	6.9	0.60	30
o-Xylene	0.070	2.4	0.30	11

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVP-4

Lab ID#: 1408471A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	2090410	Date of Collection:	8/26/14 1:10:00 PM
Dil. Factor:	18.1	Date of Analysis:	9/4/14 02:15 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	9.0	780	33	2800
Benzene	9.0	1300	29	4300
Toluene	9.0	240	34	910
Ethyl Benzene	9.0	320	39	1400
m,p-Xylene	9.0	550	39	2400
o-Xylene	9.0	200	39	880
Naphthalene	36	Not Detected	190	Not Detected
TPH ref. to Gasoline (MW=100)	450	120000	1800	490000

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
1,2-Dichloroethane-d4	127	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: SVP-5

Lab ID#: 1408471A-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v090315	Date of Collection:	8/26/14 12:28:00 PM	
Dil. Factor:	18.2	Date of Analysis:	9/3/14 05:26 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.8	520	5.8	1600
Naphthalene	9.1	Not Detected	48	Not Detected
TPH ref. to Gasoline (MW=100)	180	4400	740	18000

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: SVP-5

Lab ID#: 1408471A-06B

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

File Name:	v090315sim	Date of Collection:	8/26/14 12:28:00 PM
Dil. Factor:	18.2	Date of Analysis:	9/3/14 05:26 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.8	20	6.6	73
Toluene	0.36	100	1.4	390
Ethyl Benzene	0.36	15	1.6	64
m,p-Xylene	0.73	56	3.2	240
o-Xylene	0.36	19	1.6	83

Container Type: 6 Liter Summa Canister (SIM Certified)

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

Client Sample ID: Lab Blank

Lab ID#: 1408471A-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v090306	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/3/14 10:46 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.10	Not Detected	0.32	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected
Naphthalene	0.50	Not Detected	2.6	Not Detected
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	99	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	91	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1408471A-07B

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

File Name:	v090306sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/3/14 10:46 AM

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	Not Detected	0.16	Not Detected
Toluene	0.020	Not Detected	0.075	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	96	70-130

Client Sample ID: Lab Blank

Lab ID#: 1408471A-07C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	2090406	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/4/14 11:15 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.50	Not Detected	1.6	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	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
1,2-Dichloroethane-d4	128	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	95	70-130

Client Sample ID: CCV

Lab ID#: 1408471A-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v090302	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/3/14 07:44 AM

Compound	%Recovery
Benzene	94
Naphthalene	94
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1408471A-08B

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

File Name:	v090302sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/3/14 07:44 AM

Compound	%Recovery
Methyl tert-butyl ether	98
Benzene	84
Toluene	85
Ethyl Benzene	92
m,p-Xylene	93
o-Xylene	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1408471A-08C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	2090402	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/4/14 08:19 AM

Compound	%Recovery
Benzene	90
Ethyl Benzene	94
Toluene	88
m,p-Xylene	97
o-Xylene	99
Methyl tert-butyl ether	82
Naphthalene	81
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	119	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1408471A-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v090303	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/3/14 08:35 AM

Compound	%Recovery	Method Limits
Benzene	90	70-130
Naphthalene	65	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

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



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1408471A-09AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v090304	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/3/14 09:16 AM

Compound	%Recovery	Method Limits
Benzene	88	70-130
Naphthalene	65	60-140
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	99	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: LCS

Lab ID#: 1408471A-09B

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

File Name:	v090303sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/3/14 08:35 AM

Compound	%Recovery	Method Limits
Methyl tert-butyl ether	96	70-130
Benzene	83	70-130
Toluene	82	70-130
Ethyl Benzene	90	70-130
m,p-Xylene	91	70-130
o-Xylene	92	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1408471A-09BB

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

File Name:	v090304sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/3/14 09:16 AM

Compound	%Recovery	Method Limits
Methyl tert-butyl ether	96	70-130
Benzene	82	70-130
Toluene	83	70-130
Ethyl Benzene	90	70-130
m,p-Xylene	92	70-130
o-Xylene	92	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCS

Lab ID#: 1408471A-09C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	2090403	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/4/14 09:05 AM

Compound	%Recovery	Method Limits
Benzene	90	70-130
Ethyl Benzene	91	70-130
Toluene	88	70-130
m,p-Xylene	94	70-130
o-Xylene	93	70-130
Methyl tert-butyl ether	86	70-130
Naphthalene	81	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	118	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: LCSD

Lab ID#: 1408471A-09CC

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	2090404	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/4/14 09:55 AM

Compound	%Recovery	Method Limits
Benzene	89	70-130
Ethyl Benzene	91	70-130
Toluene	86	70-130
m,p-Xylene	92	70-130
o-Xylene	92	70-130
Methyl tert-butyl ether	86	70-130
Naphthalene	83	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	122	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	106	70-130

Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page ___ of ___

Project Manager Erica Kalve
 Collected by: (Print and Sign) Josh Minshall
 Company ARCADIS Email Erica.Kalve@arcadis-us.com
 Address 100 Smith Ranch Rd City San Rafael State CA Zip 94903
 Phone 415-491-4530 Fax _____

Project Info:
 P.O. # _____
 Project # EM009155-0017
 Project Name Former Pacific Electric Motors

Turn Around Time:
 Normal
 Rush
specify
Lab Use Only
 Pressurized by:
 Date:
 Pressurization Gas:
 N₂ He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum			
						Initial	Final	Receipt	Final (psi)
01A	Frdh Blank	13344	8/26	17:10	TO-15/ASTM 194C-H ₂	-30	-11.5		
02A	SVP-1	13846	↓	17:24	↓	-30	-5		
03A	SVP-2	4380		15:54		-30	-5		
04A	SVP-3	5927		14:38		-29	-5		
05A	SVP-4	13670		13:10		-15	-5		
06A	SVP-5	33559		12:20		-30	-5		

Relinquished by: (signature) <u>gjm</u> Date/Time <u>8/26 18:00</u>	Received by: (signature) <u>FedEx</u> Date/Time _____	Notes:
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) <u>JEATL</u> Date/Time <u>8/28/14 1415</u>	
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____	

Lab Use Only	Shipper Name <u>FedEx</u>	Air Bill # _____	Temp (°C) <u>NA</u>	Condition <u>Good</u>	Custody Seals Intact? Yes No <u>None</u>	Work Order # <u>1408471</u>
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9/4/2014
Mr. Wayne Hung
Arcadis U.S., Inc.
2550 N. First Street
Suite 200
San Jose CA 95131

Project Name: Former Pacific Electric Motors
Project #: EM009155.0017
Workorder #: 1408471B

Dear Mr. Wayne Hung

The following report includes the data for the above referenced project for sample(s) received on 8/28/2014 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: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kyle Vagadori
Project Manager

WORK ORDER #: 1408471B

Work Order Summary

CLIENT:	Mr. Wayne Hung Arcadis U.S., Inc. 2550 N. First Street Suite 200 San Jose, CA 95131	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	650-469-7230	P.O. #	EM009155.0017
FAX:	650-469-7235	PROJECT #	EM009155.0017 Former Pacific Electric
DATE RECEIVED:	08/28/2014	CONTACT:	Motors Kyle Vagadori
DATE COMPLETED:	09/04/2014		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	Field Blank	Modified ASTM D-1946	11.2 "Hg	4.7 psi
02A	SVP-1	Modified ASTM D-1946	6.5 "Hg	5.1 psi
03A	SVP-2	Modified ASTM D-1946	6.3 "Hg	4.7 psi
04A	SVP-3	Modified ASTM D-1946	6.7 "Hg	5.1 psi
05A	SVP-4	Modified ASTM D-1946	0.8 "Hg	4.8 psi
06A	SVP-5	Modified ASTM D-1946	7.8 "Hg	5.1 psi
07A	Lab Blank	Modified ASTM D-1946	NA	NA
07B	Lab Blank	Modified ASTM D-1946	NA	NA
08A	LCS	Modified ASTM D-1946	NA	NA
08AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 09/04/14

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-13-6, UT NELAP CA009332014-5, 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
Arcadis U.S., Inc.
Workorder# 1408471B

Six 6 Liter Summa Canister (SIM Certified) samples were received on August 28, 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.

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

Sample collection date was incomplete on the Chain of Custody for samples Field Blank, SVP-1, SVP-2, SVP-3, SVP-4 and SVP-5. The year of collection was assumed to be 2014.

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: Field Blank

Lab ID#: 1408471B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	0.39

Client Sample ID: SVP-1

Lab ID#: 1408471B-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.17	19
Methane	0.00017	0.013
Helium	0.086	0.79

Client Sample ID: SVP-2

Lab ID#: 1408471B-03A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.17	15
Methane	0.00017	0.77
Helium	0.084	0.71

Client Sample ID: SVP-3

Lab ID#: 1408471B-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.17	19
Methane	0.00017	0.067

Client Sample ID: SVP-4

Lab ID#: 1408471B-05A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.14	19
Methane	0.00014	0.94
Carbon Dioxide	0.014	0.044

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

Client Sample ID: SVP-5

Lab ID#: 1408471B-06A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.18	18
Methane	0.00018	0.058



Air Toxics

Client Sample ID: Field Blank

Lab ID#: 1408471B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10090309	Date of Collection:	8/26/14 5:10:00 PM
Dil. Factor:	2.11	Date of Analysis:	9/3/14 11:52 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	0.39
Methane	0.00021	Not Detected
Carbon Dioxide	0.021	Not Detected
Helium	0.10	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)



Air Toxics

Client Sample ID: SVP-1

Lab ID#: 1408471B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10090310	Date of Collection:	8/26/14 5:24:00 PM
Dil. Factor:	1.72	Date of Analysis:	9/3/14 12:20 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.17	19
Methane	0.00017	0.013
Carbon Dioxide	0.017	Not Detected
Helium	0.086	0.79

Container Type: 6 Liter Summa Canister (SIM Certified)



Air Toxics

Client Sample ID: SVP-2

Lab ID#: 1408471B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10090311	Date of Collection:	8/26/14 3:54:00 PM
Dil. Factor:	1.67	Date of Analysis:	9/3/14 12:46 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.17	15
Methane	0.00017	0.77
Carbon Dioxide	0.017	Not Detected
Helium	0.084	0.71

Container Type: 6 Liter Summa Canister (SIM Certified)



Air Toxics

Client Sample ID: SVP-3

Lab ID#: 1408471B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10090312	Date of Collection:	8/26/14 2:38:00 PM
Dil. Factor:	1.74	Date of Analysis:	9/3/14 01:34 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.17	19
Methane	0.00017	0.067
Carbon Dioxide	0.017	Not Detected
Helium	0.087	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)



Air Toxics

Client Sample ID: SVP-4

Lab ID#: 1408471B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10090313	Date of Collection:	8/26/14 1:10:00 PM
Dil. Factor:	1.36	Date of Analysis:	9/3/14 02:29 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.14	19
Methane	0.00014	0.94
Carbon Dioxide	0.014	0.044
Helium	0.068	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)



Air Toxics

Client Sample ID: SVP-5

Lab ID#: 1408471B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10090314	Date of Collection:	8/26/14 12:28:00 PM
Dil. Factor:	1.82	Date of Analysis:	9/3/14 02:59 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.18	18
Methane	0.00018	0.058
Carbon Dioxide	0.018	Not Detected
Helium	0.091	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1408471B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10090307	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/3/14 10:58 AM

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

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1408471B-07B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10090304c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/3/14 09:30 AM

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

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCS

Lab ID#: 1408471B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10090302	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/3/14 08:13 AM

Compound	%Recovery	Method Limits
Oxygen	100	85-115
Methane	104	85-115
Carbon Dioxide	98	85-115
Helium	98	85-115

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1408471B-08AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10090328	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/3/14 10:28 PM

Compound	%Recovery	Method Limits
Oxygen	100	85-115
Methane	104	85-115
Carbon Dioxide	98	85-115
Helium	98	85-115

Container Type: NA - Not Applicable