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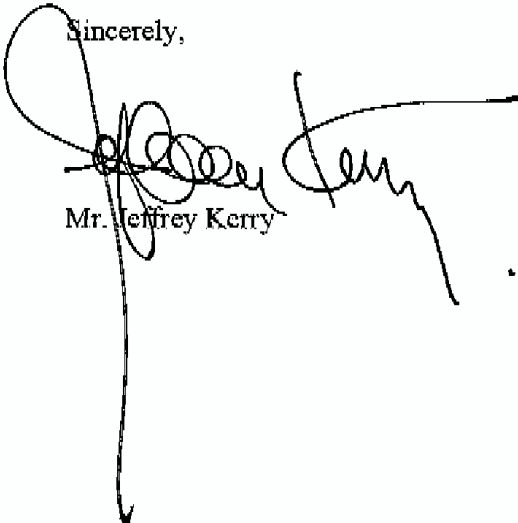
Mr. Mark Detterman  
Alameda County Environmental Health  
1131 Harbor Bay Parkway  
Alameda, CA 94502

**Re: Kerry & Associates – Palace Garage  
14336 Washington Avenue  
San Leandro, California  
ACEH Case No. RO0000208**

Dear Mr. Detterman,

I declare, under penalty of perjury, that the information and/or recommendations contained in the **Data Gap Investigation Report** are true and correct to the best of my knowledge.

Sincerely,

  
Mr. Jeffrey Kerry



November 22, 2013

Mr. Mark Detterman  
Alameda County Environmental Health  
1131 Harbor Bay Parkway  
Alameda, California 94502

**Subject: Data Gap Investigation Report  
Kerry & Associates – Palace Garage  
14336 Washington Avenue  
San Leandro, California  
ACEH Case No. RO0000208  
SFRWQCB LUFT Case No. 01-1133**

Dear Mr. Detterman:

On behalf of Kerry & Associates, Innovex Environmental Management, Inc. (INNOVEX) has prepared this *Data Gap Investigation Report* (Report) for the Palace Garage site located at 14336 Washington Avenue, San Leandro, California (the Site, Figure 1). Field work and data evaluation was performed in accordance with Closure Solutions, Inc. (Closure Solutions) *Data Gap Work Plan and Focused Site Conceptual Model* (Work Plan) dated June 28, 2013, and approved by Alameda County Environmental Health staff (ACEH) on August 22, 2013 (Attachment A).

The assessment was conducted to address data gaps identified during review of the environmental case by ACEH staff under the State Water Resource Control Board's Low Threat Underground Storage Tank Case Closure Policy (LTCP).

The ACEH review stated the Site fails to meet the following LTCP criteria:

- General Criteria f (Secondary Source Removal) based on insufficient data to establish that the secondary source has been removed to the extent practicable
- Media-Specific Criteria for Vapor Intrusion to Indoor Air based on a one-time vapor sampling event where benzene concentrations exceeded established values
- Media-Specific Criteria for Direct Contact and Outdoor Air Exposure based on insufficient soil sampling in the 0- to 10-foot depth interval beneath the Site

To address the identified data gaps, INNOVEX advanced four soil borings and installed three permanent soil vapor probes at the locations identified on Figure 2 to collect shallow soil and soil vapor samples.

The following sections provide details on the scope of work performed, an evaluation of the collected soil and soil vapor data and conclusions.

## **1.0 SITE SUMMARY**

### **1.1 Site Setting and Background**

The Site is an automotive body repair shop located on Washington Avenue in San Leandro, California (Figures 1 and 2). Land use in the vicinity of the property is primarily industrial/commercial. ACEH records show that one underground storage tank (UST) existed at the Site at the time of removal in 1991. Additional site background information, including regional and Site geology and hydrogeology, general source area conditions, and summary of sensitive receptors is provided in Attachment B.

## **2.0 SOIL BORING ADVANCEMENT VAPOR PORBE INSTALLATION AND SAMPLING**

Between October 7 and 11, 2013, INNOVEX completed the advancement of four soil borings to approximately 10 feet below ground surface (bgs) (SB-19 through SB-22) and installation of three permanent soil vapor probes (SV-4 through SV-6) at the Site as described in the June 28, 2013, Work Plan. Soil borings and soil vapor probe locations are presented on Figure 2. Details of the boring advancement, vapor probe installation, and sampling activities are presented below.

### **2.1 Preliminary Field Activities**

Prior to initiating field activities, INNOVEX obtained the necessary drilling permits from the Alameda County Public Works Department for the proposed work and cleared the Site for subsurface utilities. The utility clearance included notifying Underground Service Alert of the pending work a minimum of 48 hours prior to initiating the field investigation, and securing the services of a private utility locating company to confirm the absence of underground utilities at each boring location.

A Health and Safety Plan (HASP) was prepared for use by personnel implementing the Work Plan. The HASP addressed hazards associated with the proposed soil borings and vapor probe installation. A copy of the HASP was available on-site at all times, and subcontractor(s) performing field activities were provided with a copy of the HASP prior to initiating work. A tailgate safety meeting was also conducted to review the Site hazards and drilling work scope.

### **2.2 Soil Boring Advancement and Sampling**

On October 7, 2013, INNOVEX personnel supervised the advancement of soil borings SB-19 through SB-22 utilizing a direct push drilling rig at the locations shown on Figure 2. The borings were continuously cored to a depth of approximately 10 feet bgs, and soil samples were collected at approximately 3, 5, 7, and 10 feet bgs. Samples were also field screened for the presence of residual petroleum hydrocarbon vapor concentrations using a photo-ionization detector (PID). Because sufficient subsurface lithologic information currently exists, collected soil samples were not classified and boring logs not generated. All soil samples collected were retained for laboratory analysis and submitted under chain-of-custody protocol to SunStar Laboratories (SunStar) of Lake Forest, California, as described in Section 2.4.

## 2.3 Soil Vapor Probe Installation

On October 8, 2013, INNOVEX personnel supervised the installation of soil vapor probes SV-4 through SV-6 adjacent to borings SB-19, SB-20, and SB-21. The vapor probes were installed consistent with protocols described in the Department of Toxic Substances Controls' (DTSC) *Final Vapor Intrusion Guidance* (October 2011) document. The borings for the vapor probes were advanced by hand auger and the probes placed at approximately 5 feet bgs. All augering equipment was decontaminated between borings to prevent cross contamination in the borings. The probes were constructed of a 1-inch push-to-connect stainless steel filter attached to approximately 6.5 feet of 0.25-inch Teflon® tubing. The extra tubing was then capped to eliminate ambient air intrusion into the tubing or probe and coiled within the finished well box. Each probe was surrounded by a 12-inch sand pack consisting of #3 sand, followed by 12 inches of dry granulated bentonite, topped with a minimum of 12 inches of hydrated granular bentonite and grouted to the surface with a cement/bentonite mixture in accordance with California well construction standards. The vapor wells were completed at the ground surface with traffic-rated bolt-down well vaults. The vaults were installed slightly above the surrounding surface grade and finished with a concrete apron to provide positive relief away from the wellhead. A soil typical vapor probe construction detail is presented in Figure 3. Approximately 48 hours after installation, soil vapor samples were collected on October 11, 2013, and transported under chain-of-custody protocol to Air Toxics (Air Toxics) of Folsom, California, laboratories as described in Section 2.4.

## 2.4 Sample Handling and Analysis

### 2.4.1 Soil Sampling

Soil samples retained for chemical analysis were cut from the acrylic sample liners in 6-inch sections, capped with Teflon tape and plastic end caps, labeled, and placed in an ice-filled cooler for preservation pending transport to SunStar labs. Soil samples were submitted under chain-of-custody protocol and were analyzed for gasoline range organics (GRO), benzene, toluene, ethylbenzene, total xylenes (BTEX constituents), and naphthalene by Environmental Protection Agency (EPA) Method 8260B.

### 2.4.2 Soil Vapor Sampling

Soil vapor sampling was conducted in accordance with DTSC's October 2011 document. Soil vapor samples were collected at least 48 hours after probe installation and at least 5 days after any significant rain event of 0.25 inch or greater. The vapor samples were collected in batch certified 1-liter Summa® canisters using a closed-circuit sampling train created by attaching a sample Summa canister with flow regulator/restrictor and vacuum gauge via a steam-cleaned stainless steel manifold to the vapor probe tubing at each vapor point.

A "shut-in test" was performed prior to connecting the manifold to the vapor point tubing. The test was performed by sealing all openings to ambient air, opening the purge Summa canister to establish a vacuum inside the sampling train and waiting at least 5 minutes to ensure the vacuum remained stable over time. The "shut-in" test reduces the potential for ambient air to enter the soil vapor samples.

Using the same flow rate as is used during sampling, (between 100 and 200 milliliters per minute) approximately 3 purge volumes were purged from the sampling tubing prior to each sample collection. A purge volume test was not necessary because Summa canisters were used to collect the vapor samples. While sampling, the vacuum of the Summa canister was used to draw the soil vapor through the flow controller until a negative pressure of approximately 5 inches of mercury was observed on the vacuum gauge.

Leak testing, using helium and a shroud, was performed during all sampling. A shroud was placed over the sampling train and probe connection. Helium was released into the shroud and an average concentration of at least 20 percent was maintained and monitored by a hand-held detector.

After sample collection was completed, the Summa canisters were packaged and sent Air Toxics for analysis. Soil vapor samples were not chilled during transport and were analyzed within 14 days of sample collection. Samples were analyzed for naphthalene by EPA Method TO-17; GRO and BTEX constituents by EPA Method TO-15 (GC/MS); and oxygen, carbon dioxide, helium, methane, and nitrogen by ASTM D-1946 (GC/TCD). The presence of helium was used to evaluate if leaks were present in the sampling train during sampling. An ambient air leak up to five percent is acceptable since quantitative leak tracer testing was performed with a shroud.

Additionally, meteorological information was collected for the three days prior to sampling from the nearest meteorological station in the area. Information collected included temperature, humidity, wind speed, precipitation and barometric pressure. Meteorological data is provided in Table 1.

## **2.5 Waste Disposal**

Generated investigation-derived waste (IDW) was temporarily stored on-site in a 55-gallon, DOT-approved 17H drum pending characterization in accordance with waste disposal or recycling facility acceptance requirements. Once characterized, the IDW was transported for disposal to Recology Hay Road Landfill in Vacaville, California by Enviro Pacific of Vacaville, California.

## **3.0 ANALYTICAL RESULTS AND EVALUATION**

### **3.1 Soil**

A total of 14 soil samples were analyzed from borings SB-19 through SB-22. Laboratory analytical reports and chain-of-custody records are presented in Attachment C. Soil analytical results are presented on Table 3, Figures 4 and 5, and summarized as follows:

- GRO was reported in 11 samples at concentrations ranging from 0.66 milligram per kilogram (mg/kg) in sample SB-19-10 to 3,500 mg/kg in sample SB-20-10.
- Benzene was reported in five soil samples at concentrations ranging from 0.016 mg/kg in sample SB-22-5 to 0.35 mg/kg in sample SB-20-10.
- Toluene was reported in six soil samples at concentrations ranging from 0.0067 mg/kg in sample SB-19-5 to 0.15 mg/kg in sample SB-20-10.

- Ethylbenzene was reported in seven soil samples at concentrations ranging from 0.017 mg/kg in sample SB-22-10 to 51 mg/kg in sample SB-20-10.
- Total xylenes were reported in six soil samples at concentrations ranging from 0.2 mg/kg in sample SB-22-7 to 129 mg/kg in sample SB-20-10.
- Naphthalene was reported in six soil samples at concentrations ranging from 0.048 mg/kg in sample SB-20-3 to 29 mg/kg in sample SB-20-10

Soil concentrations were evaluated against the LTCP for direct contact and outdoor air exposure criteria (Table 1). Reported concentrations in shallow soil (0 to 5 feet bgs) indicate benzene, ethylbenzene, and naphthalene are below the established criteria for direct contact in a commercial/industrial land use scenario. For soils from 5 to 10 feet bgs, benzene, ethylbenzene, and naphthalene are also below the established criteria for volatilization to outdoor air in a commercial/industrial land use scenario. Reported concentrations in soils from 0 to 10 feet bgs, indicate benzene, ethylbenzene and naphthalene are below the established criteria for the utility worker scenario. The LTCP Table 1 is included as Attachment D.

### 3.2 Soil Vapor

Vapor samples were collected from vapor probes SV-4 through SV-6. Laboratory analytical reports and chain-of-custody records are presented in Attachment C. Soil vapor analytical results are presented on Table 3, Figures 6 and 7, and summarized as follows:

- GRO was reported at concentrations ranging from 4,900 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ , [SV-5]) to 34,000,000  $\mu\text{g}/\text{m}^3$  in sample SV-4.
- Benzene was reported at a concentration of 73,000  $\mu\text{g}/\text{m}^3$  in sample SV-4D.
- Toluene was reported at concentrations ranging from 4.7  $\mu\text{g}/\text{m}^3$  in sample SV-5 to 6,800  $\mu\text{g}/\text{m}^3$  in sample SV-4D.
- Ethylbenzene was reported at concentrations ranging from 7.9  $\mu\text{g}/\text{m}^3$  in sample SV-5 to 300,000  $\mu\text{g}/\text{m}^3$  in sample SV-4D.
- Total xylenes were reported at concentrations ranging from 22.8  $\mu\text{g}/\text{m}^3$  in sample SV-5 to 604,000  $\mu\text{g}/\text{m}^3$  in sample SV-4D.
- Naphthalene was reported at concentrations ranging from 8.3  $\mu\text{g}/\text{m}^3$  in sample SV-5 to 8,400  $\mu\text{g}/\text{m}^3$  in sample SV-4. Laboratory analytical notes state the values reported in sample SV-4 and SV-4D exceed the instrument calibration range.

Helium was detected in duplicate sample SV-4D but was not above 5 percent indicating no significant leakage occurred during sample collection. Soil vapor concentrations were evaluated against LTCP criteria for vapor intrusion to indoor air, as established in Appendix 4 (provided in Attachment D). Benzene, ethylbenzene, and naphthalene concentrations reported in SV-4 are above their associated screening criteria for a commercial land use scenario with no bioattenuation zone. For SV-5 and SV-6, analyzed constituents of concern were below their respective screening criteria. Vapor probes SV-5 and SV-6 are located within an approximate 15 foot radius of SV-4. Concentrations reported in these probes show attenuation of 1 to 3 orders of



magnitude within the approximated radius from the source area. In addition to the reduction in concentrations with distance, the building is currently occupied by an auto body painting business which requires ventilation provided by mechanical means. The Site is paved and land use at the Site is expected to continue as an auto body painting facility and remain as such in the foreseeable future. The LTCP Appendix 4 is included as Attachment D.

## 4.0 CONCLUSIONS

Shallow soil assessment was conducted at the Site to address data gaps identified during review of the environmental case by ACEH staff under the LTCP. The data gaps are presented below, along with Site-specific justification demonstrating that each of the data gaps are closed and LTCP criteria are either met or are deficient:

**General Criteria f (Secondary Source Removal) based on insufficient data to establish that the secondary source has been removed to the extent practicable:**

**CRITERION SATISFIED.** Soil data collected from 0 to 10 feet bgs indicate concentrations of TPHg/GRO and naphthalene in the vicinity of the former dispenser island do increase with depth however the BTEX constituents are consistently low.

**Media-Specific Criteria for Vapor Intrusion to Indoor Air based on a one-time vapor sampling event where benzene concentrations exceeded established values:**

**CRITERION SATISFIED.** Based on LTCP criteria for vapor intrusion to indoor air as established in Appendix 4 (provided in Attachment D), benzene, ethylbenzene, and naphthalene concentrations reported in the vicinity of the former dispenser island exceed their associated screening criteria for a commercial land use scenario with no bioattenuation zone.

**Media-Specific Criteria for Direct Contact and Outdoor Air Exposure based on insufficient soil sampling in the 0 to 10 foot depth interval beneath the Site:**

**CRITERION SATISFIED.** Soil data collected from 0 to 10 feet bgs indicate benzene, ethylbenzene, and naphthalene are below the LTCP established criteria for direct contact and volatilization to outdoor air in commercial/industrial land use and utility worker scenarios.

Based on the sample data, INNOVEX believes the identified data gaps have been closed and no additional assessment is necessary at this time.

## 5.0 LIMITATIONS

This Report is based on Site conditions, data, and other information available as of the date of the Report, and the recommendations herein are applicable only to the time frame in which the Report was prepared. Background information used to prepare this Report including, but not limited to, previous field measurements, analytical results, Site plans, and other data have been furnished to INNOVEX by Kerry & Associates and as available on the GeoTracker website. INNOVEX has relied on this information as furnished, and is neither responsible for nor has confirmed the accuracy of this information.

We appreciate the opportunity to present this document and trust that it meets with your approval. If you have any questions or concerns, please contact the undersigned at (916) 760-7579 or at mfarris@innovex-ent.com.

Sincerely,

**INNOVEX Environmental Management, Inc.**



Matthew Farris, P.G.  
Project Geologist

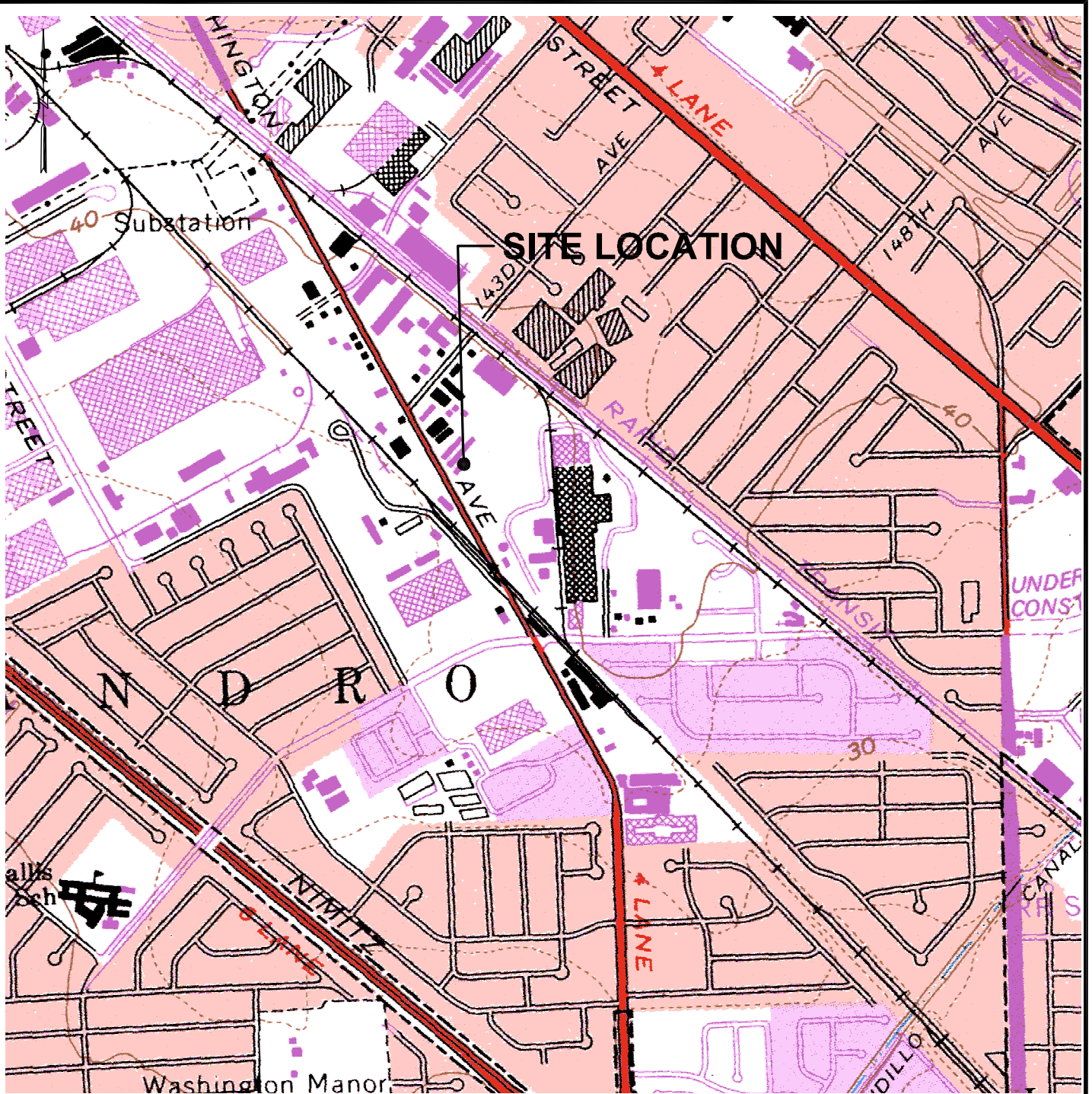


**ATTACHMENTS:**

- Figure 1 Vicinity Map
- Figure 2 Site Map with Boring Locations
- Figure 3 Typical Soil Vapor Probe Diagram
- Figure 4 TPHg/GRO Concentrations in Soil from 3 to 16 feet bgs
- Figure 5 Benzene Concentrations in Soil from 3 to 10 feet bgs
- Figure 6 TPHg/GRO Concentrations in Soil Vapor
- Figure 7 Benzene Concentrations in Soil Vapor
  
- Table 1 Meteorological Data
- Table 2 Soil Analytical Data
- Table 3 Soil Vapor Analytical Data
  
- Attachment A ACEH Correspondence
- Attachment B Additional Site Background Information
- Attachment C Soil and Soil Vapor Laboratory Analytical Reports
- Attachment D LTCP Screening Criteria

cc: Mr. Jeff Kerry, Kerry & Associates  
Mr. Gerald Donnelley





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REFERENCE:  
 USGS 7.5 MIN QUAD MAP TITLED:SAN LEANDRO, CALIFORNIA DATED: 1959 REV: 1980

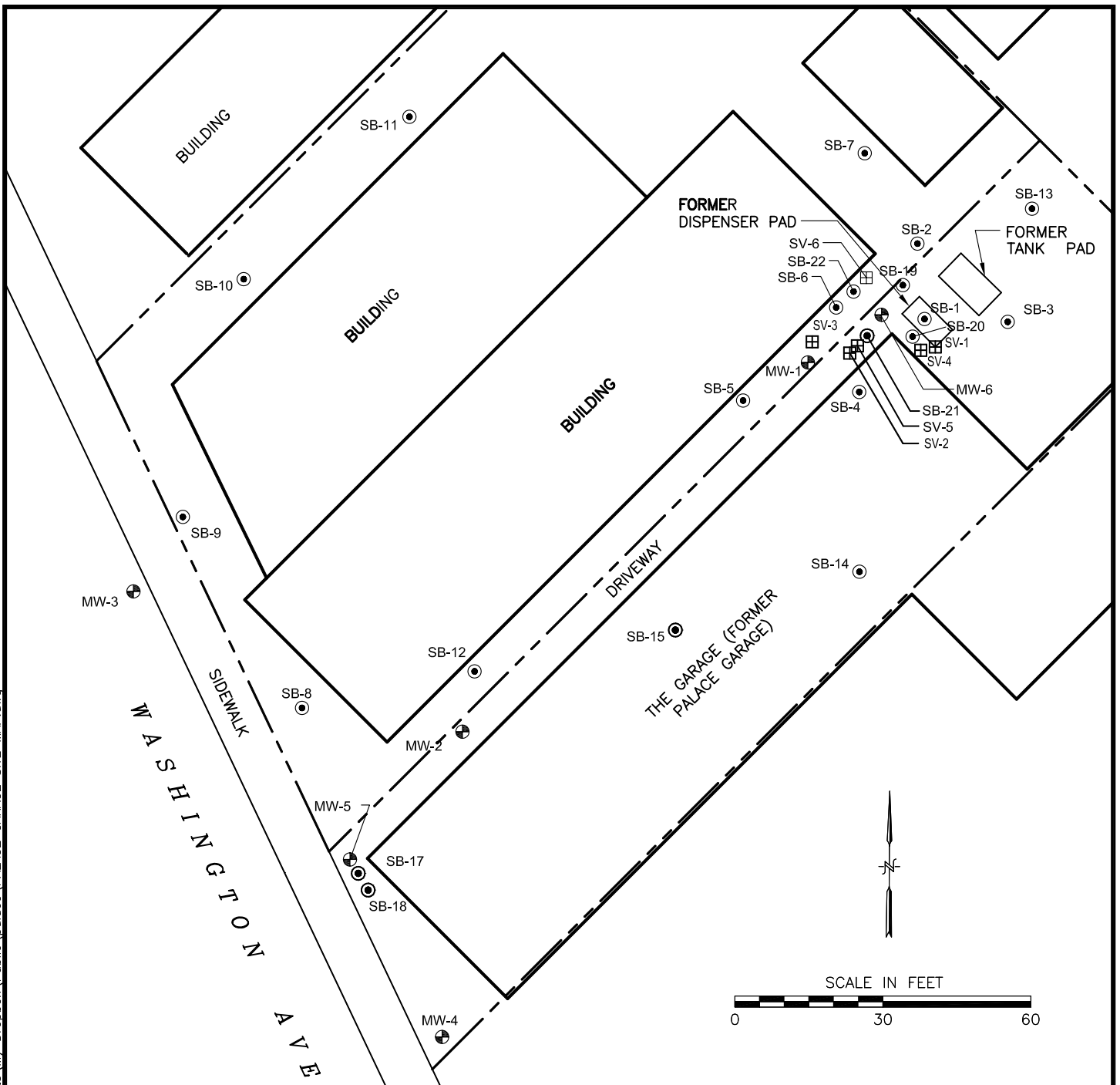
## FIGURE 1 SITE LOCATION MAP

PALACE GARAGE  
 14336 WASHINGTON AVENUE  
 SAN LEANDRO, CALIFORNIA



**INNOVEX**  
 ENVIRONMENTAL MANAGEMENT, INC.  
 4600 Northgate Boulevard • Suite 230  
 Sacramento • California • 95834  
 Phone: (800) 988-7880

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**LEGEND:**

- SHALLOW SOIL SAMPLE LOCATION
- ⊕ GROUNDWATER MONITORING WELL LOCATION
- ⊙ SOIL BORING LOCATION
- ⊞ SOIL VAPOR PROBE
- PROPERTY LINE

**NOTES:**

1. BASEMAP SOURCE: MORROW SURVEYING, 2/05/03

**FIGURE 2**

**SITE MAP WITH BORING LOCATIONS**

PALACE GARAGE  
14336 WASHINGTON AVENUE  
SAN LEANDRO, CALIFORNIA



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Sacramento • California • 95834  
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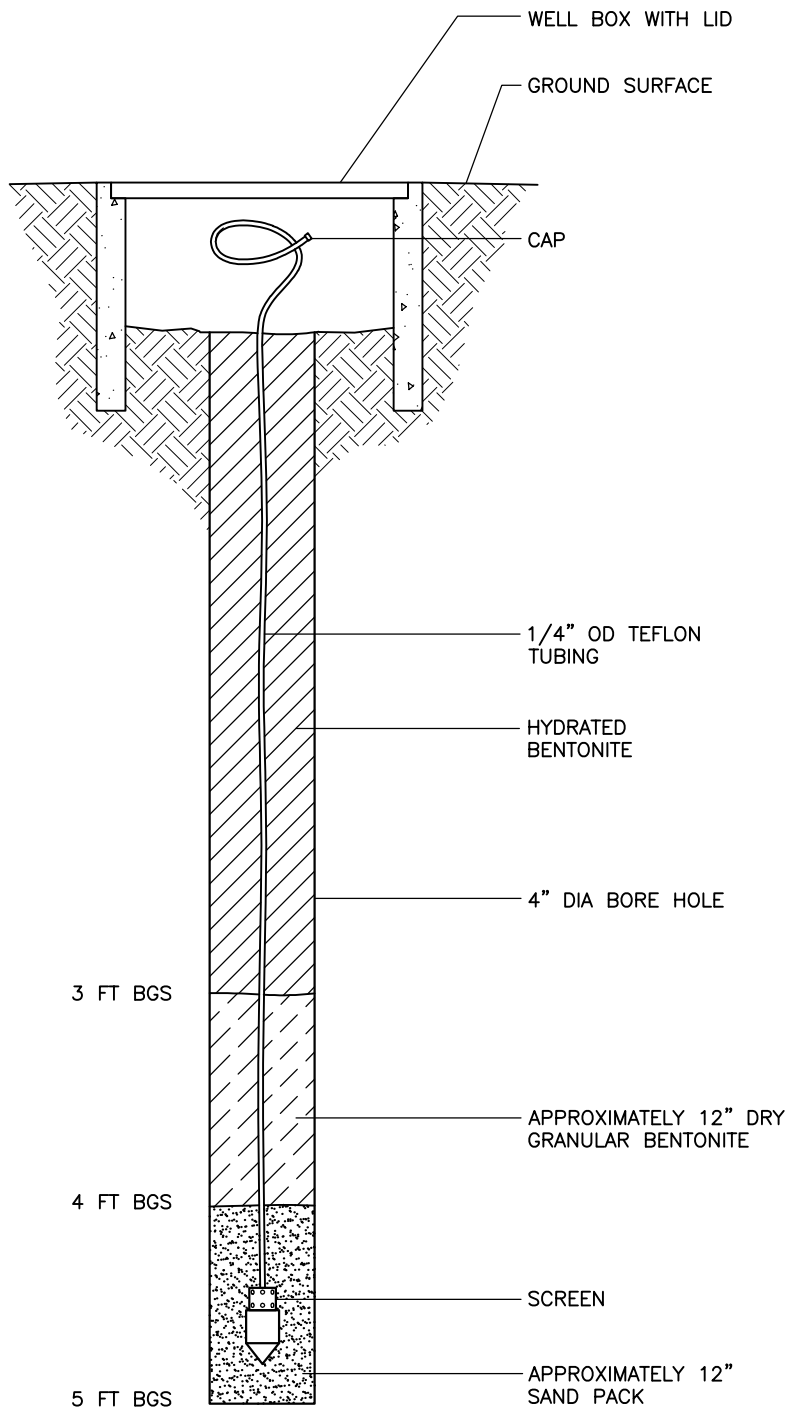


FIGURE 3

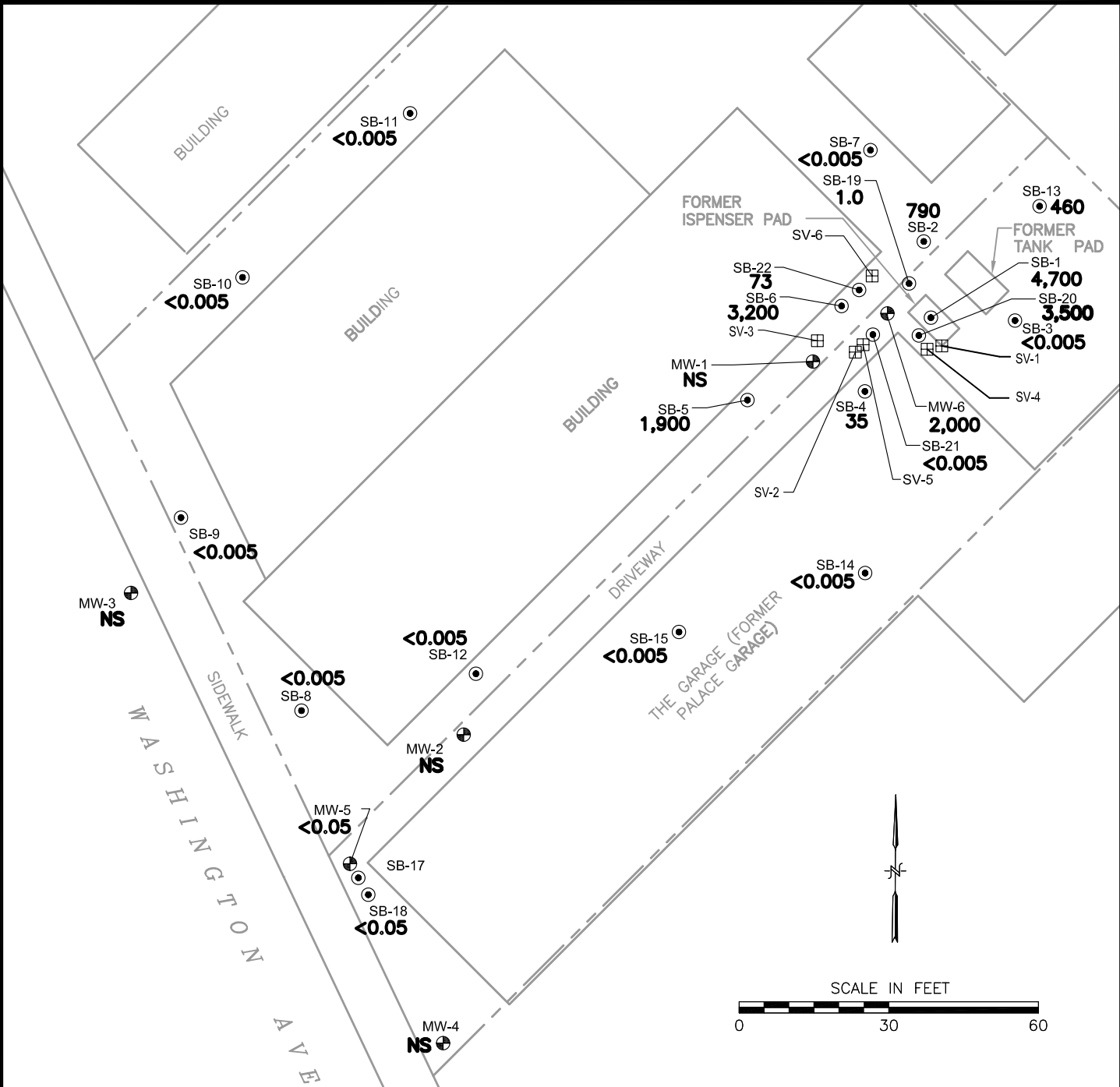
TYPICAL SOIL VAPOR PROBE DIAGRAM



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ENVIRONMENTAL MANAGEMENT, INC.

2300 Clayton Road • Suite 1435  
Concord • California • 94520  
Phone: (800) 988-7880

20131117.10545468 C:\Documents and Settings\Ron P\My Documents\My\_Dropbox\Public\palace\palace\_3013 GRO IN SOIL\_3 TO\_16\_FEET.dwg



**LEGEND:**

- GROUNDWATER MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SOIL VAPOR PROBE
- PROPERTY LINE
- 73** TPHg/GRO CONCENTRATIONS IN SOIL (mg/kg)
- NS** NOT SAMPLED

**NOTES:**

1. BASEMAP SOURCE: MORROW SURVEYING, 2/05/03

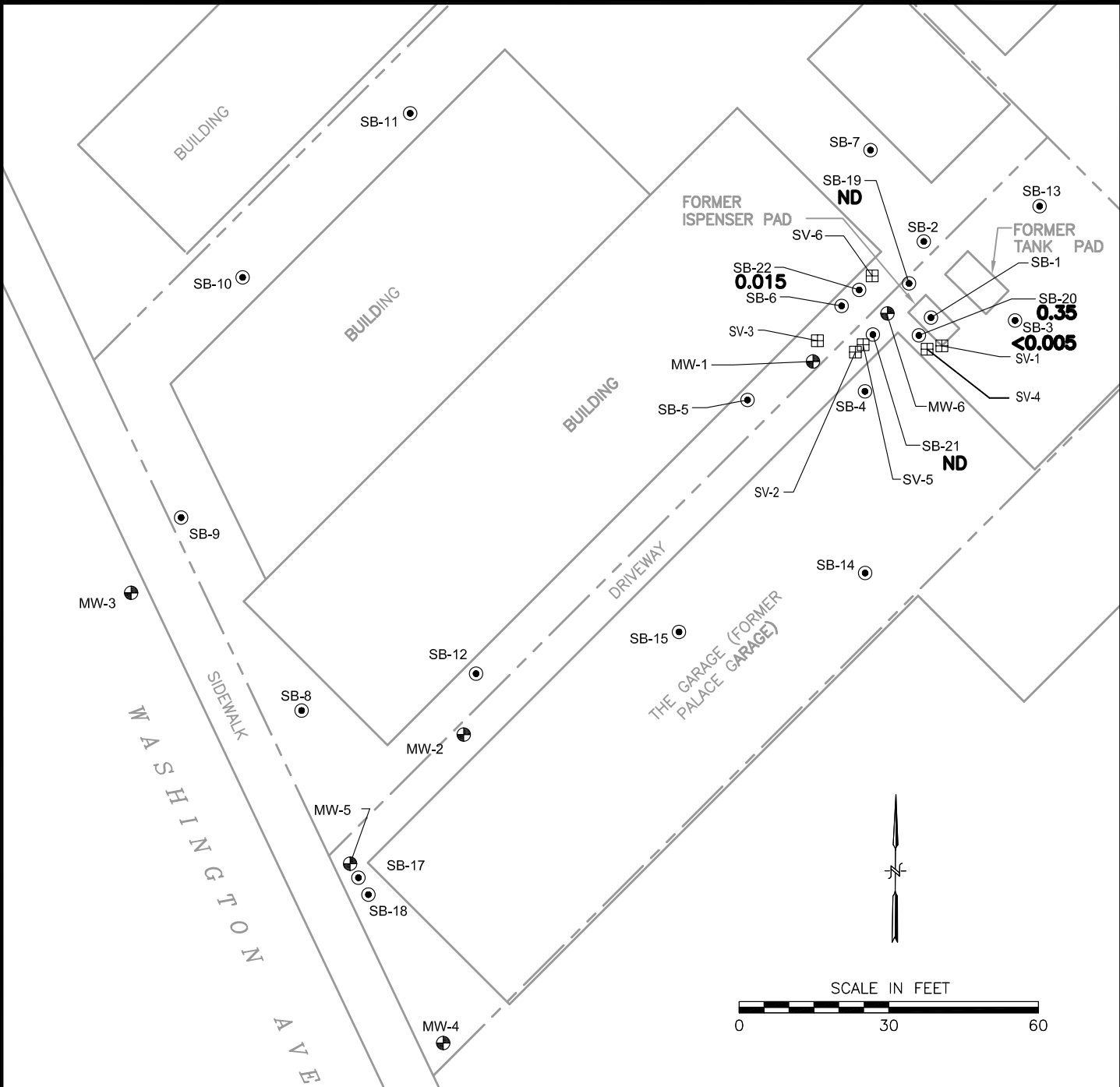
**FIGURE 4**

**TPHg/GRO CONCENTRATIONS IN SOIL FROM 3 TO 16 FEET BGS**




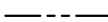
PALACE GARAGE  
14336 WASHINGTON AVENUE  
SAN LEANDRO, CALIFORNIA

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**LEGEND:**

-  GROUNDWATER MONITORING WELL LOCATION
-  SOIL BORING LOCATION
-  SOIL VAPOR PROBE
-  PROPERTY LINE
- 0.35** BENZENE CONCENTRATIONS IN SOIL (mg/kg)
- NS** NOT SAMPLED

**NOTES:**

1. BASEMAP SOURCE: MORROW SURVEYING, 2/05/03

**FIGURE 5**

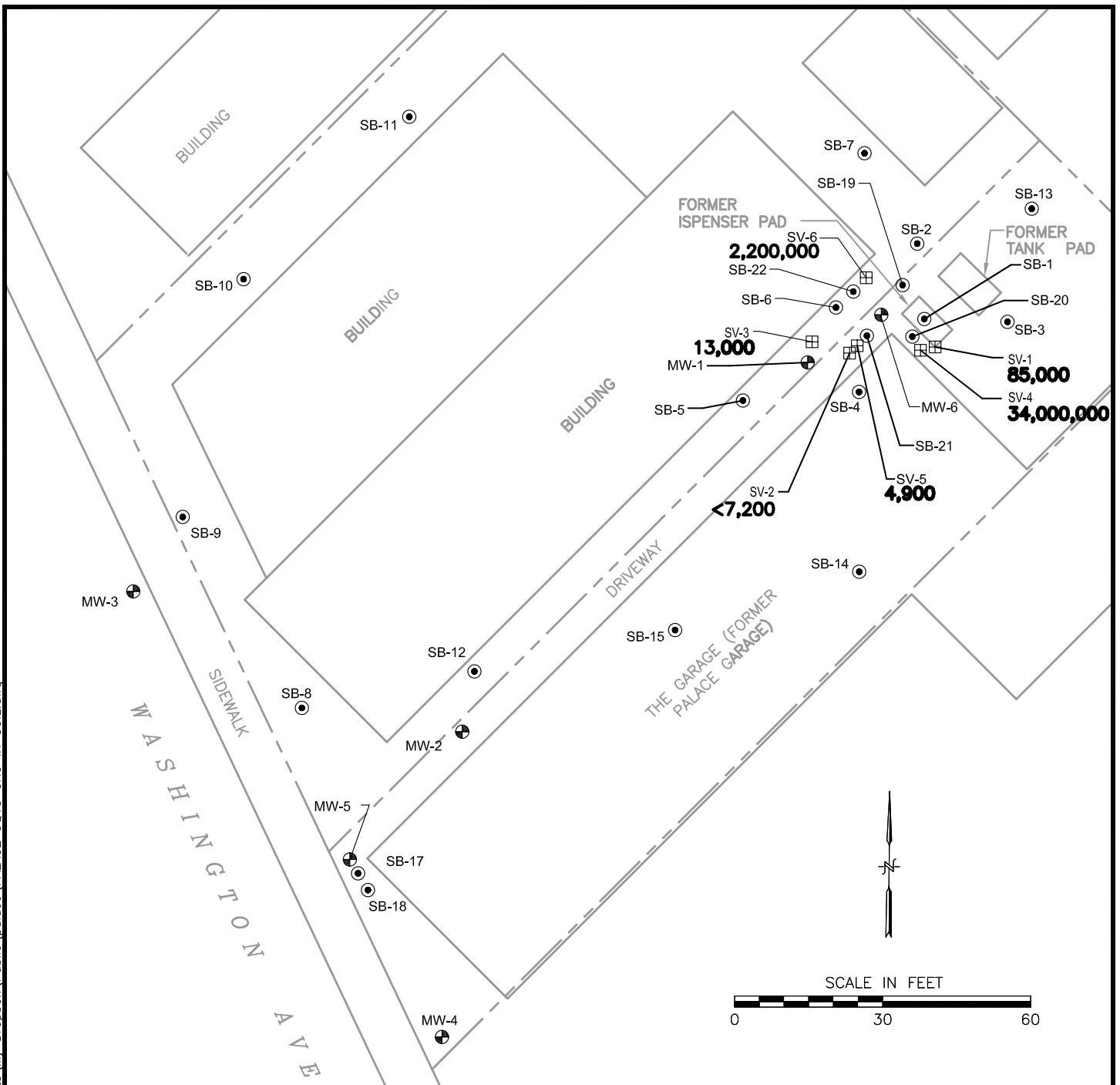
**BENZENE CONCENTRATIONS IN SOIL FROM 3 TO 10 FEET BGS**

PALACE GARAGE  
14336 WASHINGTON AVENUE  
SAN LEANDRO, CALIFORNIA







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**LEGEND:**

-  GROUNDWATER MONITORING WELL LOCATION
-  SOIL BORING LOCATION
-  SOIL VAPOR PROBE
-  PROPERTY LINE

**4,900** TPHg/GRO CONCENTRATIONS IN SOIL ( $\mu\text{g}/\text{m}^3$ )  
**NS** NOT SAMPLED

**NOTES:**

1. BASEMAP SOURCE: MORROW SURVEYING, 2/05/03

**FIGURE 6**

**TPHg/GRO CONCENTRATIONS IN SOIL VAPOR**

PALACE GARAGE  
 14336 WASHINGTON AVENUE  
 SAN LEANDRO, CALIFORNIA

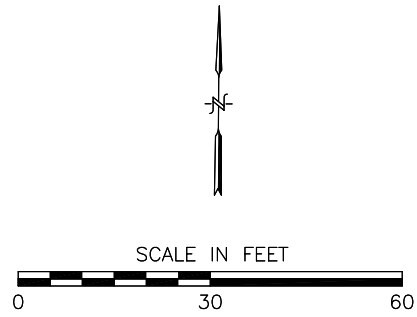
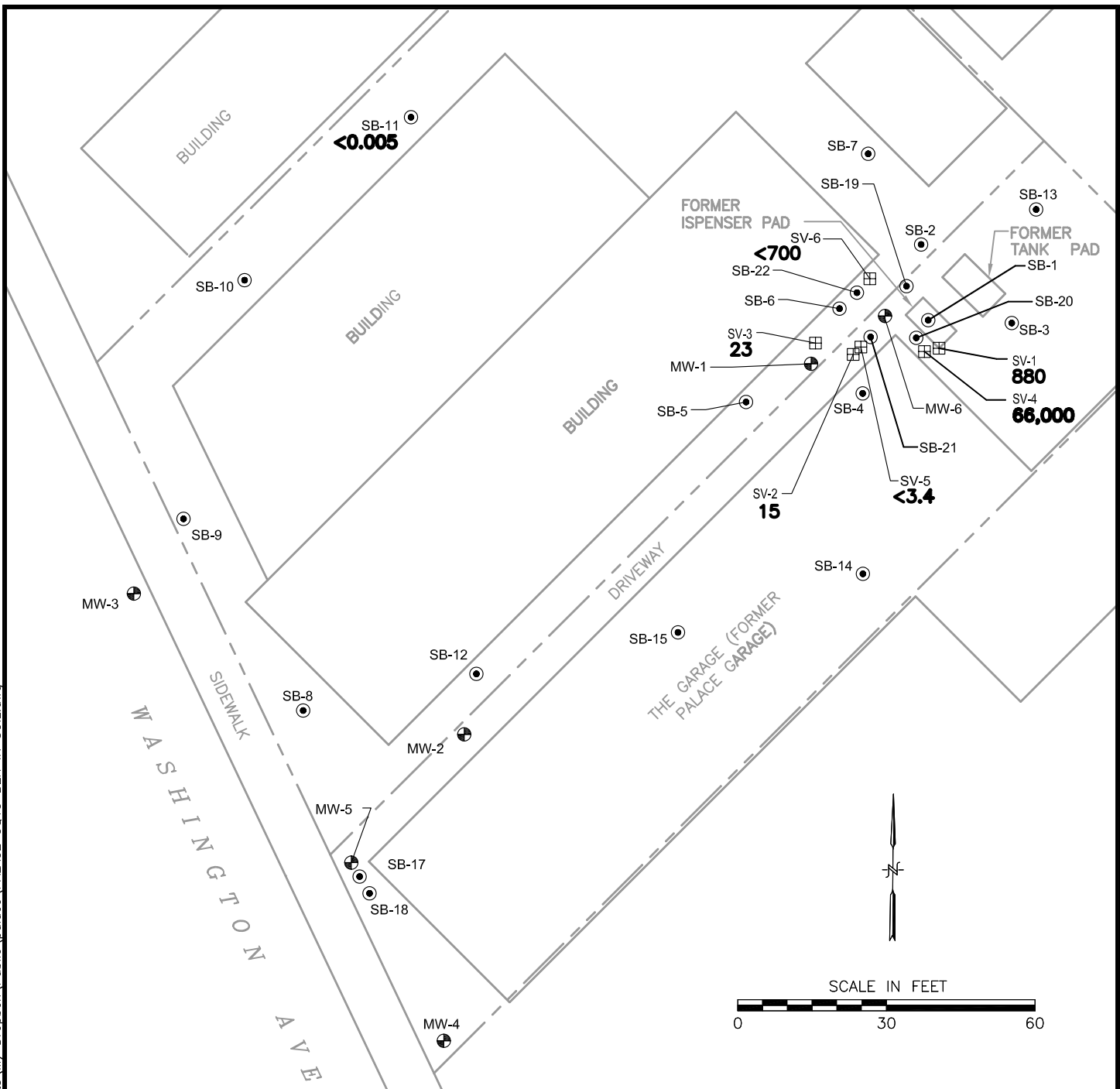


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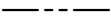
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**LEGEND:**

-  GROUNDWATER MONITORING WELL LOCATION
-  SOIL BORING LOCATION
-  SOIL VAPOR PROBE
-  PROPERTY LINE
- 880** BENZENE CONCENTRATIONS IN SOIL ( $\mu\text{g}/\text{m}^3$ )
- NS** NOT SAMPLED

**NOTES:**

1. BASEMAP SOURCE: MORROW SURVEYING, 2/05/03

**FIGURE 7**  
**BENZENE IN SOIL VAPOR**

PALACE GARAGE  
14336 WASHINGTON AVENUE  
SAN LEANDRO, CALIFORNIA



**INNOVEX**  
ENVIRONMENTAL MANAGEMENT, INC.  
4600 Northgate Boulevard • Suite 230  
Sacramento • California • 95834  
Phone: (800) 988-7880

**TABLE 1**  
**METEOROLOGICAL DATA**

Former Palace Garage  
14336 Washington Boulevard  
San Leandro, California

<b>Date Sampled</b>	<b>Temperature (°F)</b>	<b>Relative Humidity (%)</b>	<b>Wind Speed (mph)</b>	<b>Precipitation (inches)</b>	<b>Barometric Pressure (inches)</b>
10/8/2013	71	76	5WNW	0.00	29.84
10/9/2013	67	73	6S	0.00	29.69
10/10/2013	68	78	5NW	0.00	29.91

**Acronyms and Abbreviations:**

- (°F) = degreed Farenheit
- (%) = percent
- mph = miles per hour
- N = north
- W = west
- S = south

**TABLE 2**  
**SOIL ANALYTICAL DATA**

Former Palace Garage  
14336 Washington Avenue  
San Leandro, California

Sample ID	Date Sampled	Depth (feet bgs)	TPHg/GRO (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)
SB-1	2/1/1999	10-10.5	440	0.51	2.6	8.1	47	<0.5	--
SB-1	2/1/1999	15-15.5	4,700	12	21	88	480	<10	--
SB-2	2/1/1999	10-10.5	<1.0	0.016	0.012	<0.005	0.016	<0.05	--
SB-2	2/1/1999	15-15.5	790	0.64	4.8	5.3	18	<0.5	--
SB-3	2/1/1999	10-10.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--
SB-3	2/1/1999	15-15.5	<1.0	<0.005	0.021	<0.005	0.01	<0.05	--
SB-4	2/1/1999	10-10.5	<1.0	<0.005	0.01	<0.005	0.007	<0.05	--
SB-4	2/1/1999	15-15.5	35	0.029	0.32	0.13	0.22	<0.05	--
SB-5	3/23/1999	10-10.5	2.8	0.092	0.023	0.064	0.11	<10	--
SB-5	3/23/1999	15-15.5	1,900	4.3	14	35	170	<1	--
SB-6	3/23/1999	10-10.5	880	3.5	16	18	89	<10	--
SB-6	3/23/1999	15-15.5	3,200	22	160	89	460	<0.05	--
SB-7	3/23/1999	10-10.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--
SB-7	3/23/1999	15-15.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--
SB-8	7/29/1999	14-14.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--
SB-9	7/29/1999	15-15.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--
SB-10	7/29/1999	14-14.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--
SB-11	7/29/1999	15-15.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--
SB-12	7/29/1999	15-15.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--
SB-13	7/29/1999	7.5-8	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--
SB-13	7/29/1999	15-15.5	460	6.3	3.3	13	42	<0.5	--
SB-14	7/29/1999	15-15.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--
SB-15	7/29/1999	15-15.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--
SB-16-15	5/19/2000	15	<0.06	<0.005	<0.005	<0.005	<0.005	<0.005	--
SB-17-19	5/19/2000	19	0.292	<0.005	<0.005	<0.005	<0.005	<0.005	--
SB-18-16.5	7/26/2010	16.5	<0.5	<0.005	<0.005	<0.005	<0.010	--	--
MW-5	1/24/2012	13	<0.50	<0.005	<0.005	0.0076	0.0364	--	--
MW-6	1/24/2012	10	3,600	0.59	0.56	77	361	--	--
	1/24/2012	13	2,000	0.19	0.5	40	170	--	--
SB-19-3	10/7/2013	3	<b>1.0</b>	<0.005	<b>0.0095</b>	<0.010	<0.015	--	<0.005
SB-19-5	10/7/2013	5	<b>0.69</b>	<0.005	<b>0.0067</b>	<0.005	<0.015	--	<0.005
SB-19-10	10/7/2013	10	<b>0.66</b>	<0.005	<0.005	<0.005	<0.015	--	<0.005
SB-20-3	10/7/2013	3	<b>10</b>	<b>0.097</b>	<b>0.053</b>	<b>0.52</b>	<b>1.64</b>	--	<b>0.048</b>
SB-20-5	10/7/2013	5	<b>14</b>	<b>0.056</b>	<0.005	<b>0.53</b>	<b>0.166</b>	--	<b>1.4</b>
SB-20-7	10/7/2013	7	<b>550</b>	<b>0.12</b>	<0.005	<b>7.3</b>	<b>11.036</b>	--	<b>6.8</b>
SB-20-10	10/7/2013	10	<b>3500</b>	<b>0.35</b>	<b>0.15</b>	<b>51</b>	<b>129</b>	--	<b>29</b>
SB-21-3	10/7/2013	3	<0.5	<0.005	<b>0.027</b>	<0.005	<0.015	--	<0.005
SB-21-5	10/7/2013	5	<0.5	<0.005	<b>0.05</b>	<0.005	<0.015	--	<0.005
SB-21-10	10/7/2013	10	<0.5	<0.005	<0.005	<0.005	<0.015	--	<0.005
SB-22-3	10/7/2013	3	<b>1.6</b>	<0.005	<0.005	<b>0.036</b>	<b>0.012</b>	--	<0.005
SB-22-5	10/7/2013	5	<b>73</b>	0.016	<0.005	<b>1.2</b>	<b>1.91</b>	--	<b>3.7</b>
SB-22-7	10/7/2013	7	<b>8</b>	<0.005	<0.005	<b>0.089</b>	<b>0.2</b>	--	<b>0.28</b>
SB-22-10	10/7/2013	10	<b>1.6</b>	<0.005	<0.005	<b>0.017</b>	<0.015	--	<b>0.41</b>

**TABLE 2**  
**SOIL ANALYTICAL DATA**

Former Palace Garage  
14336 Washington Avenue  
San Leandro, California

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**Acronyms and Abbreviations:**

<	=	Not detected at or above specified laboratory reporting limit
B	=	benzene
bgs	=	below ground surface
E	=	ethylbenzene
mg/kg	=	milligrams per kilogram (parts per million [ppm])
T	=	toluene
TPHg/GRP	=	total petroleum hydrocarbons as gasoline/Gasoline Range Organics (C6-C12)
X	=	total xylenes

**TABLE 3  
SOIL VAPOR ANALYTICAL DATA**

Former Palace Garage  
14336 Washington Boulevard  
San Leandro, California

Sample ID	Date Sampled	Sample Depth (feet bgs)	TPHg (µg/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Toluene (µg/m <sup>3</sup> )	Ethyl-benzene (µg/m <sup>3</sup> )	Total Xylenes (µg/m <sup>3</sup> )	Naphthalene (µg/m <sup>3</sup> )
SV-1	07/26/10	5	85,000	880	<190	8,900	6,200	--
SV-2	07/26/10	5	<7,200	15	58	9.0	32	--
SV-2 DUP	07/26/10	5	<7,200	15	55	8.8	30	--
SV-3	07/26/10	5	13,000	23	87	7.7	41	--
Outdoor Air	07/26/10	--	<7,200	<3.3	6.2	<4.4	<13.2	--
SV-4	10/11/13	5	<b>34,000,000</b>	<b>66,000</b>	4,200	<b>270,000</b>	<b>560,000</b>	<b>8,400</b>
SV-4D	10/11/13	5	<b>33,000,000</b>	<b>73,000</b>	6,800	<b>300,000</b>	<b>604,000</b>	<b>6,600</b>
SV-5	10/11/13	5	4,900	<3.4	4.7	7.9	22.8	8.3
SV-6	10/11/13	5	<b>2,200,000</b>	<700	1,500	<960	<1,920	33
ESLs for Shallow Soil Gas (C/I) <sup>1</sup>			29,000	280	180,000	3,300	58,000	240

Sample ID	Date Sampled	Sample Depth (feet bgs)	2-Propanol (µg/m <sup>3</sup> )	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Nitrogen (%)	Helium (%)
SV-1	07/26/10	5	<130	6,500	<0.18	20.2	82.7	--
SV-2	07/26/10	5	<13	<3,300	<0.19	20.1	81.3	--
SV-2 DUP	07/26/10	5	<13	<3,300	<0.18	19.7	80.7	--
SV-3	07/26/10	5	<13	<3,300	<0.19	20.5	83.5	--
Outdoor Air	07/26/10	--	<13	<3,300	<0.19	19.6	79.9	--
SV-4	10/11/13	5	--	5.4	13	2.2	79	<0.12
SV-4D	10/11/13	5	--	5.5	14	1.8	78	<b>0.17</b>
SV-5	10/11/13	5	--	0.00059	6.6	5.0	88	<0.11
SV-6	10/11/13	5	--	2.0	12	2.2	84	<0.11
ESLs for Shallow Soil Gas (C/I) <sup>1</sup>			NE	NE	NE	NE	NE	NE

**TABLE 3**  
**SOIL VAPOR ANALYTICAL DATA**

Former Palace Garage  
14336 Washington Boulevard  
San Leandro, California

**Notes:**

1 = Environmental Screening Levels (ESLs) for soil gas (Vapor Intrusion Concerns) for commercial/industrial land use from the 2007 Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater- Interim Final by the California Regional Water Quality Control Board, San Francisco Bay Region, November 2007, revised May 2008, Table E

**Bold** = detection above ESLs

All sample containers were 1-Liter Summa Canisters.

TPHg, benzene, toluene, ethylbenzene, and total xylenes were analyzed using EPA Method TO-15.

Naphthalene analyzed using TO-17.

Carbon dioxide, oxygen, methane, nitrogen, and helium were analyzed using EPA Method ASTM D-1946.

**Acronyms and Abbreviations:**

-- = Not Samples/Not Analyzed  
 $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter  
NE = not established  
TPHg = total petroleum hydrocarbons as gasoline



**ATTACHMENT A  
ACEH Correspondence**



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

May 29, 2013

Mr. Jeff Kerry  
Kerry & Associates  
151 Callan Avenue, Suite 300  
San Leandro, CA 94577  
(sent via electronic mail to:  
[djkerry1@aol.com](mailto:djkerry1@aol.com))

Mr. Jeffery Kerry  
Jeffery & Dolores Kerry Trust & Jame Donnelley et. al.  
19655 North Ripon Road  
Ripon, CA 95366

Subject: Request for Work Plan; Fuel Leak Case No. RO00000208; Palace Garage (Global ID #T0600101043), 14336 Washington Avenue, San Leandro, CA 94578

Dear Mr. Kerry:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the *First Quarter 2013 Groundwater Monitoring Report*, dated February 28, 2013, and the *Revised Draft Corrective Action Plan (CAP)*, dated April 10, 2013. ACEH has also received a draft Public Participation document for the site for review. The reports and the Public Participation document were prepared and submitted on your behalf by Closure Solutions, Inc. (Closure Solutions). Thank you for submitting them. The CAP proposes installation of two dual-phase extraction wells to perform secondary source removal. ACEH has evaluated the data and recommendations presented in the above-mentioned reports, in conjunction with the case files, and the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP). Based on ACEH staff review, we have determined that the site fails to meet the LTCP General Criteria f (Secondary Source Removal) based on insufficient data to establish that the secondary source has been removed to the extent practicable, the Media-Specific Criteria for Vapor Intrusion to Indoor Air based on a one-time vapor sampling event where benzene concentrations exceeded acceptable values under the LTCP, and the Media-Specific Criteria for Direct Contact and Outdoor Air Exposure based on insufficient soil sampling in the 0 to 5 and 5 to 10 foot depth intervals beneath the site (see Attachment A for a copy of the LTCP checklist).

ACEH notes that it may be possible for the site to obtain closure under the LTCP if sufficient additional data is collected to address the current deficiencies at the site under the LTCP. As a consequence, rather than proceed with proposed corrective actions and the potential attendant costs, ACEH requests that you prepare a Data Investigation Work Plan that is supported by a focused Site Conceptual Model (SCM) to address the LTCP technical comments provided below.

#### **TECHNICAL COMMENTS**

- 1. LTCP General Criteria f – Secondary Source Has Been Removed to the Extent Practicable** – The former underground storage tank (UST) at the site was reported to have been removed and soil excavated vertically to a depth of approximately 18 to 20 feet below grade surface (bgs). A UST removal confirmation sample was collected at a depth of ten feet bgs; however, the bottom of the overexcavation was not sampled for characterization. The excavation is not reported to have been enlarged laterally, and the dispenser island is reported not to have been excavated. Soil bore SB-1 was installed through the former dispenser location and encountered contamination in two soil samples collected at 10 and 15 feet bgs. Shallower soil samples were not collected. Soil vapor location SV-1 located immediately adjacent to the former dispenser location yielded benzene vapor concentrations in excess of allowable concentrations in the LTCP without confirmation of the concentration of Total Petroleum Hydrocarbons (TPH) in the upper 5 or 10 feet bgs. These data indicate that uncharacterized residual shallow contamination remains in the source area(s) in vicinity of the former UST and dispenser, and that the

removal of the secondary source (specifically defined by the LTCP to be tank system proximal) to the extent practicable has not been established.

Consequently, please present a strategy in the Data Gap Investigation Work Plan described in Technical Comment 4 below to collect additional data to determine this LTCP requirement. Alternatively, please provide justification of why the site data satisfies this General Criteria in a focused SCM as described below.

- 2. LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air** – The LTCP describes conditions, including bioattenuation zones, which if met will assure that exposure to petroleum vapors in indoor air will not pose unacceptable health risks to human occupants of existing or future site buildings, and adjacent parcels. Appendices 1 through 4 of the LTCP criteria illustrate four potential exposure scenarios and describe characteristics and criteria associated with each scenario.

Our review of the case files indicates that insufficient data and analysis has been presented to determine that the site meets the LTCP vapor intrusion to indoor air criteria. Specifically, as discussed above, existing one-time soil vapor data indicates that an uncharacterized residual contaminant mass is present at a shallow depth in the vicinity of the former UST and dispenser.

Therefore, please present a strategy in the Data Gap Investigation Work Plan described in Technical Comment 4 below to collect additional data to satisfy the bioattenuation zone characteristics of Scenarios 1, 2 or 3, or to collect gas data to satisfy Scenario 4.

Alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Vapor Intrusion to Indoor Air in a focused SCM that assures that exposure to petroleum vapors in indoor air will not pose unacceptable health risks to occupants of future buildings.

Please note, that if direct measurement of soil gas is proposed, ensure that your strategy is consistent with the field sampling protocols described in the Department of Toxic Substances Control's Final Vapor Intrusion Guidance (October 2011). Consistent with the guidance, ACEH requires installation of permanent vapor wells to assess temporal and seasonal variations in soil gas concentrations. However, since one one-time sampling event data has been collected already, a second one-time event may provide sufficient data to assess vapor intrusion potential and the need for corrective.

- 3. LTCP Media Specific Criteria for Direct Contact and Outdoor Air Exposure** - To satisfy the media-specific criteria for direct contact and outdoor air exposure sufficient soil samples are required to have been collected and analyzed to determine if residual soil contamination meets the concentrations listed in Table 1 of the policy. Alternatively a site specific risk assessment can be conducted to demonstrate that the maximum concentrations in soil will have no significant risk to adversely affect human health, or the regulatory agency can determine the concentrations will have no significant risk or adversely affect human health.

Our review of the case files indicates that insufficient data and analysis has been presented to determine that the site meets the LTCP direct contact and outdoor air exposure criteria. Specifically, with one exception, no soil samples have been collected in the 0 to 5 and the 5 to 10 foot depth zones as required by the shallow soil characterization pathway within this Criterion. The one sample, collected at a depth of 7.5 feet bgs, was located 15 to 20 feet upgradient of the source(s), and is non-detectable for TPH as gasoline and BTEX and MTBE at standard reporting limits. This is not unexpected at an upgradient location. At present, no soil samples have been collected in either the 0 to 5 or 5 to 10 foot depth zones within the source zone(s), or downgradient of the fuel hydrocarbon UST.

Consequently, please present a strategy in the Data Gap Investigation Work Plan described in Technical Comment 4 below to collect additional data to satisfy the additional characteristics of one of the two classes of sites listed in the policy.

Alternatively, please provide justification of why the site satisfies the media-specific criteria for direct contact and outdoor air exposure in a focused SCM (described in Technical Comment 4) that assures that threats by residual shallow soil sources have been mitigated or are de minimis.

- 4. Data Gap Investigation Work Plan and Focused Site Conceptual Model** – Please prepare Data Gap Investigation Work Plan to address the technical comments listed above. Please support the scope of work in the Data Gap Investigation Work Plan with a focused SCM and Data Quality Objectives (DQOs) that relate the data collection to each LTCP criteria. For example please clarify which scenario within

each Media-Specific Criteria a sampling strategy is intended to apply to. If the sampling strategy includes data collection to support the proposed site redevelopment, a description of that redevelopment should be included in the Data Gap Investigation Work Plan to support your sampling strategy so that ACEH can verify the appropriateness of the proposed sample locations.

In order to expedite review, ACEH requests the SCM be presented in a tabular format that highlights the major SCM elements and associated data gaps, which need to be addressed to progress the site to case closure under the LTCP. Please see Attachment B "Site Conceptual Model Requisite Elements". Please sequence activities in the proposed Data Gap Investigation scope of work to enable efficient data collection in the fewest mobilizations possible.

5. **Path to Closure Project Schedule** - The State Water Resources Control Board passed Resolution No. 2012-0062 on November 6, 2012 which requires development of a "Path to Closure Plan" by December 31, 2013 that addresses the impediments to closure for the site. The Path to Closure must have milestone dates tied to calendar quarters which will achieve site cleanup and case closure in a timely and efficient manner and minimizes the cost of corrective action. Therefore, by the date listed below please prepare a Path to Closure Schedule for your site that incorporates the items identified by ACEH in the Technical Comments above as impediments to closure (further detailed in Attachment C). Additionally, please evaluate the site against the LTCP criteria and incorporate additional data collection activities in the Path to Closure Schedule and Data Gap Investigation Work Plan to address other impediments to closure under the policy not identified by ACEH. ACEH staff utilizes a Data Gap Identification Tool (DGIT) while reviewing cases for compliance with the LTCP criteria and identification of impediments to closure. We encourage you to also utilize the DGIT to (1) evaluate your site and develop an efficient path to site closure by focusing data collection efforts, if necessary, on the LTCP criteria, and (2) assist and expedite ACEH staff review of work plans and request for closures. ACEH will provide the DGIT as a PDF form via e-mail upon request. ACEH will review the schedule to ensure that all key elements are included.
6. **Groundwater Monitoring Interval** – Quarterly groundwater monitoring at recently installed wells has progressed through a full hydrologic cycle. Consequently, please convert all wells to a semi-annual groundwater sampling interval using the months of May and November (2<sup>nd</sup> and 4<sup>th</sup> quarters) for sampling. This is expected to capture the range of hydrocarbon concentrations in groundwater beneath the site.

### **TECHNICAL REPORT REQUEST**

Please upload technical reports to the ACEH ftp site (Attention: Mark Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with Attachment 1 and the following specified file naming convention and schedule:

- **June 28, 2013** – Data Gap Investigation Plan, and Focused Site Conceptual Model  
File to be named: RO2408\_WP\_R\_yyyy-mm-dd
- **July 12, 2013** – Semi-Annual Groundwater Monitoring Report  
File to be named: RO208\_GWM\_R\_yyyy-mm-dd
- **September 9, 2013** – Path to Closure Schedule  
File to be named: RO208\_WP\_R\_yyyy-mm-dd
- **December 20, 2013** – Semi-Annual Groundwater Monitoring Report  
File to be named: RO208\_GWM\_R\_yyyy-mm-dd

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.

Online case files are available for review at the following website: <http://www.acgov.org/aceh/index.htm>.

Mr. Jeff Kerry  
RO000208  
May 29, 2013, Page 4

If you have any questions, please call me at (510) 567-6876 or send me an electronic mail message at [mark.detterman@acgov.org](mailto:mark.detterman@acgov.org).

Sincerely,



Digitally signed by Mark Detterman  
DN: cn=Mark Detterman, o, ou,  
email=mark.detterman@acgov.org, c=US  
Date: 2013.05.29 13:47:34 -07'00'

Mark E. Detterman, PG, CEG  
Senior Hazardous Materials Specialist

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations and Electronic Report Upload (ftp) Instructions

Attachment A – Geotracker LTCP Checklist

Attachment B – Site Conceptual Model Requisite Elements

Attachment C – Path to Closure Project Schedule Requisite Elements

cc: Matthew Farris, Closure Solutions, Inc, 4600 Northgate Blvd, Suite 230, Sacramento, CA 95834  
(sent via electronic mail to: [mfarris@closureolutions.com](mailto:mfarris@closureolutions.com))

Donna Drogos (sent via electronic mail to [donna.drogos@acgov.org](mailto:donna.drogos@acgov.org))

Dilan Roe (sent via electronic mail to [dilan.roe@acgov.org](mailto:dilan.roe@acgov.org))

Mark Detterman (sent via electronic mail to [mark.detterman@acgov.org](mailto:mark.detterman@acgov.org))

Electronic File, GeoTracker

**ATTACHMENT A**

**Geotracker LTCP Checklist**



LTCP Checklist  GEOTRACKER HOME | MANAGE PROJECTS | REPORTS | SEARCH | LOGOUT

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**PALACE GARAGE (T0600101043) - [MAP THIS SITE](#)** **OPEN - ASSESSMENT & INTERIM REMEDIAL ACTION**

14336 WASHINGTON AVE  
SAN LEANDRO , CA 94578  
ALAMEDA COUNTY

[ACTIVITIES REPORT](#)  
[PUBLIC WEBSITE](#)

**CLEANUP OVERSIGHT AGENCIES**  
ALAMEDA COUNTY LOP (LEAD) - CASE #: R00000208  
CASEWORKER: [MARK DETTERMAN](#) - SUPERVISOR: DONNA DROGOS  
SAN FRANCISCO BAY RWQCB (REGION 2) - CASE #: 01-1133  
CASEWORKER: [Cherie McCaulou](#) - SUPERVISOR: MARY ROSE CASSA  
CUF Claim #: 14228 CUF Priority Assigned: B CUF Amount Paid: \$100,552

VIEW PRINTABLE CASE SUMMARY FOR THIS SITE

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THIS PROJECT WAS LAST MODIFIED BY [MARK DETTERMAN](#) ON 1/25/2013 10:50:41 AM - [HISTORY](#)

THIS SITE HAS SUBMITTALS. CLICK [HERE](#) TO OPEN A NEW WINDOW WITH THE SUBMITTAL APPROVAL PAGE FOR THIS SITE.

---

**CLOSURE POLICY** **CLOSURE POLICY HISTORY**

**THIS VERSION IS FINAL AS OF 1/25/2013**

---

**General Criteria - The site satisfies the policy general criteria - [CLEAR SECTION ANSWERS](#)** **NO**

a. Is the unauthorized release located within the service area of a public water system?  
Name of Water System :   YES  NO

b. The unauthorized release consists only of petroleum [\(info\)](#).  YES  NO

c. The unauthorized ("primary") release from the UST system has been stopped.  YES  NO

d. Free product has been removed to the maximum extent practicable [\(info\)](#).  FP Not Encountered  YES  NO

e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed [\(info\)](#).  YES  NO

f. Secondary source has been removed to the extent practicable [\(info\)](#).  
Impediment to Removing Secondary Source (Check all that Apply):  
 Remediation Has Not Been Attempted  
 Remediation Was Designed Incorrectly  
 Remediation Was Shut Off Prematurely  
 Poor Remediation O&M  
 Other -  YES  NO

g. Soil or groundwater has been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15.  Not Required  YES  NO

h. Does a nuisance exist, as defined by [Water Code section 13050](#).  YES  NO

---

**1. Media-Specific Criteria: Groundwater - The contaminant plume that exceeds water quality objectives is stable or decreasing in areal extent, and meets all of the additional characteristics of one of the five classes of sites listed below. - [CLEAR SECTION ANSWERS](#)** **YES**

**EXEMPTION - Soil Only Case (Release has not Affected Groundwater - [Info](#))**  YES  NO

Does the site meet any of the Groundwater specific criteria scenarios?  YES  NO

1.2 - The contaminant plume that exceeds water quality objectives is <250 feet in length. There is no free product. The nearest existing water supply well or surface water body is >1,000 feet from the defined plume boundary. The dissolved concentration of benzene is <3,000 µg/L. The dissolved concentration of MTBE is <1,000 µg/L.  YES  NO

---

**2. Media Specific Criteria: Petroleum Vapor Intrusion to Indoor Air - The site is considered low-threat for the vapor-intrusion-to-air pathway if site-specific conditions satisfy items 2a, 2b, or 2c - [CLEAR SECTION ANSWERS](#)** **NO**

**EXEMPTION - Active Commercial Petroleum Fueling Facility**  YES  NO

Does the site meet any of the Petroleum Vapor Intrusion to Indoor Air specific criteria scenarios?  YES  NO

**ADDITIONAL QUESTIONS - Please indicate only those conditions that do not meet the policy criteria:**

Soil Gas Samples :  
 No Soil Gas Samples  Taken Incorrectly  Not Taken at Two Depths Within 5ft Zone

Exposure Type :  
 Residential  Commercial

Free Product :  
 In Groundwater  In Soil  Unknown

TPH in the Bioattenuation Zone :  
 ≥ 100 mg/kg  Unknown

Bioattenuation Zone Thickness :  
 < 5 Feet (No BioZone)  ≥ 5 Feet and < 10 Feet  ≥ 10 Feet and < 30 Feet  ≥ 30 Feet  30ft BioZone Compromised TPH > 100mg/kg  Unknown

O2 Data in Bioattenuation Zone :  
 No O<sub>2</sub> Data  O<sub>2</sub> < 4%  O<sub>2</sub> ≥ 4%

Benzene in Groundwater :  
 ≥ 100 µg/l and < 1,000 µg/l  ≥ 1,000 µg/l  Unknown

Soil Gas Benzene :  
 ≥ 85 µg/m<sup>3</sup> and < 280 µg/m<sup>3</sup>  ≥ 280 µg/m<sup>3</sup> and < 85,000 µg/m<sup>3</sup>  ≥ 85,000 µg/m<sup>3</sup> and < 280,000 µg/m<sup>3</sup>  ≥ 280,000 µg/m<sup>3</sup>  Unknown

Soil Gas EthylBenzene :  
 ≥ 1,100 µg/m<sup>3</sup> and < 3,600 µg/m<sup>3</sup>  ≥ 3,600 µg/m<sup>3</sup> and < 1,100,000 µg/m<sup>3</sup>  ≥ 1,100,000 µg/m<sup>3</sup> and < 3,600,000 µg/m<sup>3</sup>  ≥ 3,600,000 µg/m<sup>3</sup>  Unknown

Soil Gas Naphthalene :  
 ≥ 93 µg/m<sup>3</sup> and < 310 µg/m<sup>3</sup>  ≥ 310 µg/m<sup>3</sup> and < 93,000 µg/m<sup>3</sup>  ≥ 93,000 µg/m<sup>3</sup> and < 310,000 µg/m<sup>3</sup>  ≥ 310,000 µg/m<sup>3</sup>  Unknown

---

**3. Media Specific Criteria: Direct Contact and Outdoor Air Exposure - The site is considered low-threat for direct contact and outdoor air exposure if it meets 1, 2, or 3 below. - [CLEAR SECTION ANSWERS](#)** **NO**

**EXEMPTION - The upper 10 feet of soil is free of petroleum contamination**  YES  NO

Does the site meet any of the Direct Contact and Outdoor Air Exposure criteria scenarios?  YES  NO

**ADDITIONAL QUESTIONS - Please indicate only those conditions that do not meet the policy criteria:**

Exposure Type :  
 Residential  Commercial  Utility Worker

Petroleum Constituents in Soil :  
 ≤ 5 Feet bgs  >5 Feet bgs and ≤10 Feet bgs  Unknown

Soil Concentrations of Benzene :

<input type="radio"/> > 1.9 mg/kg and ≤ 2.8 mg/kg <input type="radio"/> > 2.8 mg/kg and ≤ 8.2 mg/kg <input type="radio"/> > 8.2 mg/kg and ≤ 12 mg/kg <input type="radio"/> > 12 mg/kg and ≤ 14 mg/kg <input type="radio"/> > 14 mg/kg <input checked="" type="radio"/> Unknown
<b>Soil Concentrations of EthylBenzene :</b>
<input type="radio"/> > 21 mg/kg and ≤ 32 mg/kg <input type="radio"/> > 32 mg/kg and ≤ 89 mg/kg <input type="radio"/> > 89 mg/kg and ≤ 134 mg/kg <input type="radio"/> > 134 mg/kg and ≤ 314 mg/kg <input type="radio"/> > 314 mg/kg <input checked="" type="radio"/> Unknown
<b>Soil Concentrations of Naphthalene :</b>
<input type="radio"/> > 9.7 mg/kg and ≤ 45 mg/kg <input type="radio"/> > 45 mg/kg and ≤ 219 mg/kg <input type="radio"/> > 219 mg/kg <input checked="" type="radio"/> Unknown
<b>Soil Concentrations of PAH :</b>
<input type="radio"/> > 0.063 mg/kg and ≤ 0.68 mg/kg <input type="radio"/> > 0.68 mg/kg and ≤ 4.5 mg/kg <input type="radio"/> > 4.5 mg/kg <input checked="" type="radio"/> Unknown
<b>Area of Impacted Soil :</b>
<input type="radio"/> Area of Impacted Soil > 82 by 82 Feet <input checked="" type="radio"/> Unknown
<b>Additional Information</b>
This case should be closed in spite of NOT meeting policy criteria. <span style="float: right;"><input type="radio"/> YES   <input checked="" type="radio"/> NO</span>
SPELL CHECK
<input type="button" value="Save in Progress"/> <input type="button" value="Save as Final"/>

LOGGED IN AS MARKDETT

[CONTACT GEOTRACKER HELP](#)

**ATTACHMENT B**

**Site Conceptual Model Requisite Elements**

## ATTACHMENT B

### Site Conceptual Model

The site conceptual model (SCM) is an essential decision-making and communication tool for all interested parties during the site characterization, remediation planning and implementation, and closure process. A SCM is a set of working hypotheses pertaining to all aspects of the contaminant release, including site geology, hydrogeology, release history, residual and dissolved contamination, attenuation mechanisms, pathways to nearby receptors, and likely magnitude of potential impacts to receptors.

The SCM is initially used to characterize the site and identify data gaps. As the investigation proceeds and the data gaps are filled, the working hypotheses are modified, and the overall SCM is refined and strengthened until it is said to be "validated". At this point, the focus of the SCM shifts from site characterization towards remedial technology evaluation and selection, and later remedy optimization, and forms the foundation for developing the most cost-effective corrective action plan to protect existing and potential receptors.

For ease of review, Alameda County Environmental Health (ACEH) requests utilization of tabular formats to (1) highlight the major SCM elements and their associated data gaps which need to be addressed to progress the site to case closure (see Table 1 of attached example), and (2) highlight the identified data gaps and proposed investigation activities (see Table 2 of the attached example). ACEH requests that the tables presenting the SCM elements, data gaps, and proposed investigation activities be updated as appropriate at each stage of the project and submitted with work plans, feasibility studies, corrective action plans, and requests for closures to support proposed work, conclusions, and/or recommendations.

The SCM should incorporate, but is not limited to, the topics listed below. Please support the SCM with the use of large-scaled maps and graphics, tables, and conceptual diagrams to illustrate key points. Please include an extended site map(s) utilizing an aerial photographic base map with sufficient resolution to show the facility, delineation of streets and property boundaries within the adjacent neighborhood, downgradient irrigation wells, and proposed locations of transects, monitoring wells, and soil vapor probes.

- a. Regional and local (on-site and off-site) geology and hydrogeology. Include a discussion of the surface geology (e.g., soil types, soil parameters, outcrops, faulting), subsurface geology (e.g., stratigraphy, continuity, and connectivity), and hydrogeology (e.g., water-bearing zones, hydrologic parameters, impermeable strata). Please include a structural contour map (top of unit) and isopach map for the aquitard that is presumed to separate your release from the deeper aquifer(s), cross sections, soil boring and monitoring well logs and locations, and copies of regional geologic maps.
- b. Analysis of the hydraulic flow system in the vicinity of the site. Include rose diagrams for depicting groundwater gradients. The rose diagram shall be plotted on groundwater elevation contour maps and updated in all future reports submitted for your site. Please address changes due to seasonal precipitation and groundwater pumping, and evaluate the potential interconnection between shallow and deep aquifers. Please include an analysis of vertical hydraulic gradients, and effects of pumping rates on hydraulic head from nearby water supply wells, if appropriate. Include hydraulic head in the different water bearing zones and hydrographs of all monitoring wells.
- c. Release history, including potential source(s) of releases, potential contaminants of concern (COC) associated with each potential release, confirmed source locations, confirmed release locations, and existing delineation of release areas. Address primary leak source(s) (e.g., a tank, sump, pipeline, etc.) and secondary sources (e.g., high-

## ATTACHMENT B

### Site Conceptual Model (continued)

concentration contaminants in low-permeability lithologic soil units that sustain groundwater or vapor plumes). Include local and regional plan view maps that illustrate the location of sources (former facilities, piping, tanks, etc.).

- d. Plume (soil gas and groundwater) development and dynamics including aging of source(s), phase distribution (NAPL, dissolved, vapor, residual), diving plumes, attenuation mechanisms, migration routes, preferential pathways (geologic and anthropogenic), magnitude of chemicals of concern and spatial and temporal changes in concentrations, and contaminant fate and transport. Please include three-dimensional plume maps for groundwater and two-dimensional soil vapor plume plan view maps to provide an accurate depiction of the contaminant distribution of each COC.
- e. Summary tables of chemical concentrations in different media (i.e., soil, groundwater, and soil vapor). Please include applicable environmental screening levels on all tables. Include graphs of contaminant concentrations versus time.
- f. Current and historic facility structures (e.g., buildings, drain systems, sewer systems, underground utilities, etc.) and physical features including topographical features (e.g., hills, gradients, surface vegetation, or pavement) and surface water features (e.g. routes of drainage ditches, links to water bodies). Please include current and historic site maps.
- g. Current and historic site operations/processes (e.g., parts cleaning, chemical storage areas, manufacturing, etc.).
- h. Other contaminant release sites in the vicinity of the site. Hydrogeologic and contaminant data from those sites may prove helpful in testing certain hypotheses for the SCM. Include a summary of work and technical findings from nearby release sites, including the two adjacent closed LUFT sites, (i.e., Montgomery Ward site and the Quest Laboratory site).
- i. Land uses and exposure scenarios on the facility and adjacent properties. Include beneficial resources (e.g., groundwater classification, wetlands, natural resources, etc.), resource use locations (e.g., water supply wells, surface water intakes), subpopulation types and locations (e.g., schools, hospitals, day care centers, etc.), exposure scenarios (e.g. residential, industrial, recreational, farming), and exposure pathways, and potential threat to sensitive receptors. Include an analysis of the contaminant volatilization from the subsurface to indoor/outdoor air exposure route (i.e., vapor pathway). Please include copies of Sanborn maps and aerial photographs, as appropriate.
- j. Identification and listing of specific data gaps that require further investigation during subsequent phases of work. Proposed activities to investigate and fill data gaps identified.

**TABLE 1  
INITIAL SITE CONCEPTUAL MODEL**

<b>CSM Element</b>	<b>CSM Sub-Element</b>	<b>Description</b>	<b>Data Gap</b>	<b>How to Address</b>
Geology and Hydrogeology	Regional	<p>The site is in the northwest portion of the Livermore Valley, which consists of a structural trough within the Diablo Range and contains the Livermore Valley Groundwater Basin (referred to as "the Basin") (DWR, 2006). Several faults traverse the Basin, which act as barriers to groundwater flow, as evidenced by large differences in water levels between the upgradient and downgradient sides of these faults (DWR, 2006). The Basin is divided into 12 groundwater basins, which are defined by faults and non-water-bearing geologic units (DWR, 1974).</p> <p>The hydrogeology of the Basin consists of a thick sequence of fresh-water-bearing continental deposits from alluvial fans, outwash plains, and lacustrine environments to up to approximately 5,000 feet bgs (DWR, 2006). Three defined fresh-water bearing geologic units exist within the Basin: Holocene Valley Fill (up to approximately 400 feet bgs in the central portion of the Basin), the Plio-Pleistocene Livermore Formation (generally between approximately 400 and 4,000 feet bgs in the central portion of the Basin), and the Pliocene Tassajara Formation (generally between approximately 250 and 5,000 or more feet bgs) (DWR, 1974). The Valley Fill units in the western portion of the Basin are capped by up to 40 feet of clay (DWR, 2006).</p>	None	NA
	Site	<p><b>Geology:</b> Borings advanced at the site indicate that subsurface materials consist primarily of finer-grained deposits (clay, sandy clay, silt and sandy silt) with interbedded sand lenses to 20 feet below ground surface (bgs), the approximate depth to which these borings were advanced. The documented lithology for one on-site boring that was logged to approximately 45 feet bgs indicates that beyond approximately 20 feet bgs, fine-grained soils are present to approximately 45 feet bgs. A cone penetrometer technology test indicated the presence of sandier lenses from approximately 45 to 58 feet bgs and even coarser materials (interbedded with finer-grained materials) from approximately 58 feet to 75 feet bgs, the total depth drilled. The lithology documented at the site is similar to that reported at other nearby sites, specifically the Montgomery Ward site (7575 Dublin Boulevard), the Quest laboratory site (6511 Golden Gate Drive), the Shell-branded Service Station site (11989 Dublin Boulevard), and the Chevron site (7007 San Ramon Road).</p> <p><b>Hydrogeology:</b> Shallow groundwater has been encountered at depths of approximately 9 to 15 feet bgs. The hydraulic gradient and groundwater flow direction have not been specifically evaluated at the site.</p>	<p>As noted, most borings at the site have been advanced to approximately 20 feet bgs, and one boring has been advanced and logged to 45 feet bgs, CPT data was collected to 75 feet bgs at one location. Lithologic data will be obtained from additional borings that will be advanced on site to further the understanding of the subsurface, especially with respect to deeper lithology.</p> <p>The on-site shallow groundwater horizontal gradient has not been confirmed. Additionally, it is not known if there may be a vertical component to the hydraulic gradient.</p>	<p>Two direct push borings and four multi-port wells will be advanced to depth (up to approximately 75 feet bgs) and soil lithology will be logged. See items 4 and 5 on Table 2.</p> <p>Shallow and deeper groundwater monitoring wells will be installed to provide information on lateral and vertical gradients. See Items 2 and 5 on Table 2.</p>
Surface Water Bodies		The closest surface water bodies are culverted creeks. Martin Canyon Creek flows from a gully west of the site, enters a culvert north of the site, and then bends to the south, passing approximately 1,000 feet east of the site before flowing into the Alamo Canal. Dublin Creek flows from a gully west of the site, enters a culvert approximately 750 feet south of the site, and then joins Martin Canyon Creek approximately 750 feet southeast of the site.	None	NA
Nearby Wells		The State Water Resources Control Board's GeoTracker GAMA website includes information regarding the approximate locations of water supply wells in California. In the vicinity of the site, the closest water supply wells presented on this website are depicted approximately 2 miles southeast of the site; the locations shown are approximate (within 1 mile of actual location for California Department of Public Health supply wells and 0.5 mile for other supply wells). No water-producing wells were identified within 1/4 mile of the site in the well survey conducted for the Quest Laboratory site (6511 Golden Gate Drive; documented in 2009); information documented in a 2005 report for the Chevron site at 7007 San Ramon Road indicates that a water-producing well may exist within 1/2 mile of the site.	A formal well survey is needed to identify water-producing, monitoring, cathodic protection, and dewatering wells.	Obtain data regarding nearby, permitted wells from the California Department of Water Resources and Zone 7 Water Agency (Item 11 on Table 2).



**TABLE 2  
DATA GAPS AND PROPOSED INVESTIGATION**

<b>Item</b>	<b>Data Gap</b>	<b>Proposed Investigation</b>	<b>Rationale</b>	<b>Analysis</b>
5	Evaluate the possible presence of impacts to deeper groundwater.  Evaluate deeper groundwater concentration trends over time.  Obtain data regarding the vertical groundwater gradient.  Obtain more lithological data below 20 feet bgs.	Install four continuous multichannel tubing (CMT) groundwater monitoring wells (aka multi-port wells) to approximately 65 feet bgs in the northern parking lot with ports at three depths (monitoring well locations may be adjusted pending results of shallow grab groundwater samples; we will discuss any potential changes with ACEH before proceeding). Groundwater monitoring frequency to be determined. Soil samples will be collected only if there are field indications of impacts. Soil lithology will be logged. However, information regarding the moisture content of soil may not be reliable using sonic drilling technology (two borings will be logged using direct push technology; see Item 4, above).	One well is proposed at the western (upgradient) property boundary to confirm that there are no deeper groundwater impacts from upgradient. Two wells are proposed near the center of the northern parking lot to evaluate potential impacts in an area where deeper impacts, if any, would most likely to be found. One well is proposed at the eastern (downgradient) property boundary to confirm that there are no impacts extending off-site. Port depths will be chosen based on the locations of saturated soils (as logged in direct push borings, see Item 4, above), but are expected at approximately 15, 45, and 60 feet bgs.	<i>Groundwater:</i> VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.
6	Evaluate possible off-site migration of impacted soil vapor in the downgradient direction (east).  Evaluate concentration trends over time.	Install 4 temporary nested soil vapor probes at approximately 4 and 8 feet bgs along the eastern property boundary. Based on the results of the sampling, two sets of nested probes will be converted to vapor monitoring wells to allow for evaluation of VOC concentration trends over time.	Available data indicate that PCE and TCE are present in soil vapor in the eastern portion of the northern parking lot. Samples are proposed on approximately 50-foot intervals along the eastern property boundary to provide a transect of concentrations through the vapor plume. The depths of 4 and 8 feet bgs are chosen to provide data closest to the source (i.e., groundwater) while avoiding saturated soil, and also provide shallower data to help evaluate potential attenuation within the soil column. Two sets of nested vapor probes will be converted into vapor monitoring wells (by installing well boxes at ground surface); the locations of the permanent wells will be chosen based on the results of samples from the temporary probes.	<i>Soil vapor:</i> VOCs by EPA Method TO-15.
7	Evaluate potential for off-site migration of impacted groundwater in the downgradient direction (east).	Advance two borings to approximately 20 feet bgs in the parking lot of the property east of the Crown site for collection of grab groundwater samples.	Two borings are proposed off-site, on the property east of the Crown site, just east of the building in the expected area of highest potential VOC concentrations.	<i>Groundwater:</i> VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.
8	Evaluate VOC concentrations just north of the highest concentration area.	Advance two borings to approximately 20 feet bgs north of Building A for collection of soil and grab groundwater samples. Soil samples will be collected at two depths in the vadose zone. Soil samples will be collected based on field indications of impacts (PID readings, odor, staining) or, in the absence of field indications of impacts, at 5 and 10 feet bgs.	The highest concentrations of PCE in groundwater were detected at boring NM-B-32, just north of Building A. The nearest available data to the north are approximately 75 feet away. One of the borings will be advanced approximately 20 feet north of NM-B-32 to provide data close to the highest concentration area. A second boring will be advanced approximately halfway between the first boring and former boring NM-B-33 to provide additional spatial data for contouring purposes. These borings will be part of a transect in the highest concentration area.	<i>Groundwater:</i> VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.  <i>Soil:</i> VOCs by EPA Method 8260 (soil samples to be collected using field preservation in accordance with EPA Method 5035).
9	Evaluate VOC concentrations in soil vapor in the south parcel of the site.	Install four temporary soil vapor probes at approximately 5 feet bgs around boring SV-25, where PCE was detected in soil vapor at a low concentration.	PCE was detected in soil vapor sample SV-25 in the southern parcel, although was not detected in groundwater in that area. Three probes will be installed approximately 30 feet from of boring SV-25 to attempt to delineate the extent of impacts. A fourth probe is proposed west of the original sample, close to the property boundary and the location of mapped utility lines, which may be a potential conduit, to evaluate potential impacts from the west.	<i>Soil vapor:</i> VOCs by EPA Method TO-15.
10	Obtain additional information regarding subsurface structures and utilities to further evaluate migration pathways and sources.	Ground penetrating radar (GPR) and other utility locating methodologies will be used, as appropriate, to further evaluate the presence of unknown utilities and structures at the site.	Utilities have been identified at the site that include an on-site sewer lateral and drain line, and shallow water, electric, and gas lines. Given the current understanding of the distribution of PCE in groundwater at the site, it is possible that other subsurface utilities, and specifically sewer laterals, exist that may act as a source or migration pathway for distribution of VOCs in the subsurface.	NA

**ATTACHMENT C**

**Path to Closure Project Schedule Requisite Elements**

## ATTACHMENT C

### Path to Closure Project Schedule Requisite Elements

The State Water Resources Control Board passed Resolution No. 2012-0062 on November 6, 2012 which requires development of a "Path to Closure Plan" by December 31, 2013 that addresses the impediments to closure for the site. Please prepare a Path to Closure Schedule that has milestone dates tied to calendar quarters which will achieve site cleanup and case closure in a timely and efficient manner and minimizes the cost of corrective action. The complexity of the Path to Closure Schedule should be commensurate with the complexity of the site and tasks required to achieve case closure. ACEH will review the schedule to ensure appropriate key elements are included.

The Path to Closure Schedule should include the following key environmental elements and milestones as appropriate:

- Preferential Pathway Study
- Soil, Groundwater, and Soil Vapor Investigations
- Initial, Updated, and Final/Validated SCMs
- Interim Remedial Actions
- Feasibility Study/Corrective Action Plan
- Pilot Tests
- Remedial Actions
- Soil Vapor and Groundwater Monitoring Well Installation and Monitoring
- Public Participation Program (Fact Sheet Preparation/Distribution/Public Comment Period, Community Meetings, etc.)
- Case Closure Tasks (Request for closure documents, ACEH Case Closure Summary Preparation and Review, Site Management Plan, Institutional Controls, Public Participation, Landowner Notification, Well Decommissioning, Waste Removal, and Reporting.)

Please include time for regulatory and RP in house review, permitting, off-site access agreements, and utility connections, etc.

For complex projects (i.e., redevelopment projects, etc.), please use a critical path methodology/tool to construct a schedule with sufficient detail to support a realistic and achievable Path to Closure Schedule. The schedule is to include at a minimum:

- Defined work breakdown structure including summary tasks required to accomplish the project objectives and required deliverables
- Summary task decomposition into smaller more manageable components that can be scheduled, monitored, and controlled
- Sequencing of activities to identify and document relationships among the project activities using logical relationships
- Identification of critical paths, linkages, predecessor and successor activities, leads and lags, and key milestones
- Identification of entity responsible for executing work
- Estimated activity durations (60-day ACEH review times are based on calendar days)



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

August 22, 2013

Mr. Jeff Kerry  
Kerry & Associates  
151 Callan Avenue, Suite 300  
San Leandro, CA 94577  
(sent via electronic mail to:  
[djkerry1@aol.com](mailto:djkerry1@aol.com))

Mr. Jeffery Kerry  
Jeffery & Dolores Kerry Trust & Jame Donnelley et. al.  
19655 North Ripon Road  
Ripon, CA 95366

Subject: Conditional Work Plan Approval; Fuel Leak Case No. RO00000208; Palace Garage (Global ID #T0600101043), 14336 Washington Avenue, San Leandro, CA 94578

Dear Mr. Kerry:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the *Second Quarter 2013 Groundwater Monitoring Report*, dated May 31, 2013, and the *Data Gap Investigation Work Plan and Focused Site Conceptual Model*, dated June 28, 2013. Thank you for submitting the reports.

ACEH has evaluated the data and recommendations presented in the above-mentioned reports, in conjunction with the case files, and the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP). Based on ACEH staff review, we have determined that the site fails to meet the LTCP General Criteria f (undocumented dispenser secondary source removal), Media-Specific Criteria for Vapor Intrusion to Indoor Air, and the Media-Specific Criteria for Direct Contact Exposure.

The work plan proposes to install four soil bores to collect soil samples in the 0 to 5 and the 5 to 10 foot depth intervals in close proximity to the source area in order to determine if the site can meet the Vapor Intrusion and Direct Contact Media-Specific Criteria of the LTCP. To date no soil samples have been collected in the 0 to 5 foot depth interval, one soil sample has been collected in the 5 to 10 foot interval, and 7 soil samples have been collected at 10 to 10.5 feet below surface grade (bgs). Per multiple State Water Resource Control Board verbal communications, the use of this later data is allowable (sufficiently meets policy guidance) at a site. The single soil sample collected in the 5 to 10 foot depth range is located somewhat distant from the source (approximately 15 feet upgradient of the release), and thus is not a good data point on which to evaluate the site under the Vapor Intrusion or Direct Contact Media-Specific Criteria of the LTCP. Three of the seven soil samples collected slightly below the policy prescribed 10 foot interval contain hydrocarbon concentrations up to 3,600 mg/kg TPH as gasoline and 3.5 mg/kg benzene. These samples indicate that the site does not meet the "low concentration groundwater scenarios" of the Soil Vapor Intrusion to Indoor Air Media-Specific Criteria of the LTCP.

The work plan additionally proposes to install three vapor points to collect additional soil vapor data at the site in an alternative effort to determine if the site could meet the Vapor Intrusion Criteria of the LTCP. At present the site fails this criterion due to the detection of up to 880  $\mu\text{g}/\text{m}^3$  benzene which exceeds the < 280  $\mu\text{g}/\text{m}^3$  value allowed at a commercial site without a demonstrated bioattenuation zone (with analytical data in the 0 to 5 foot depth interval), but would pass a site with a bioattenuation zone (with TPH analytical data within the 0 to 5 foot depth interval).

Based on ACEH staff review of the reports, ACEH is in general agreement that the proposed scope of work will collect sufficient data to fulfill the remaining data gaps at the site. Based on the data to be collected, it is anticipated that a LTCP determination can be made. The work is conditionally approved for implementation provided that the technical comments below are incorporated during the proposed field investigation. Submittal of a revised work plan is not required unless an alternate scope of work outside that described in the work plan or technical comments below is proposed. We request that you address the following

technical comments, perform the proposed work, and send us the reports described below. Please provide 72-hour advance written notification to this office (e-mail preferred to: [mark.detterman@acgov.org](mailto:mark.detterman@acgov.org)) prior to the start of field activities.

### **TECHNICAL COMMENTS**

1. **Work Plan Modifications** – The referenced work plan proposes a series of actions with which ACEH is in general agreement of undertaking; however, ACEH requests several modifications to the approach. Please submit a report by the date specified below.
  - a. **Recent Detection of Naphthalene at the Site** – The detection of naphthalene in groundwater samples documented in the above referenced groundwater monitoring report indicates that the former UST is likely to have also stored diesel at one time, rather than just gasoline as reported at the time of removal. The conversion of an existing UST to an alternative fuel is not uncommon. However, because of this recent understanding of the presence of diesel at the site, please be aware that Appendix E of the Department of Toxic Substance Control (DTSC) April 2012 *Advisory Active Soil Gas Investigations*, specifies that TO-17 analysis for naphthalene should be used to validate TO-15 naphthalene analysis and also specifies the tubing type due to sorption of naphthalene by standard sampling tubing. Consequently ACEH requests confirmation sampling by TO-17 in the analytical program and use of appropriate non-sorbing tubing for naphthalene soil vapor collection.

### **TECHNICAL REPORT REQUEST**

Please upload technical reports to the ACEH ftp site (Attention: Mark Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with Attachment 1 and the following specified file naming convention and schedule:

- **October 18, 2013** – Site Investigation Report  
File to be named: RO208\_SWI\_R\_yyyy-mm-dd

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.

Online case files are available for review at the following website: <http://www.acgov.org/aceh/index.htm>.

If you have any questions, please call me at (510) 567-6876 or send me an electronic mail message at [mark.detterman@acgov.org](mailto:mark.detterman@acgov.org).

Sincerely,



Digitally signed by Mark Detterman  
DN: cn=Mark Detterman, o, ou,  
\_email=mark.detterman@acgov.org, c=US  
Date: 2013.08.22 10:08:27 -07'00'

Mark E. Detterman, PG, CEG  
Senior Hazardous Materials Specialist

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations and Electronic Report Upload (ftp) Instructions

cc: Matthew Farris, Closure Solutions, Inc, 4600 Northgate Blvd, Suite 230, Sacramento, CA 95834  
(sent via electronic mail to: [mfarris@closureolutions.com](mailto:mfarris@closureolutions.com))

Dilan Roe (sent via electronic mail to [dilan.roe@acgov.org](mailto:dilan.roe@acgov.org))  
Mark Detterman (sent via electronic mail to [mark.detterman@acgov.org](mailto:mark.detterman@acgov.org))  
Electronic File, GeoTracker

## **Attachment 1**

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

#### **REPORT/DATA REQUESTS**

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

#### **ELECTRONIC SUBMITTAL OF REPORTS**

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

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

#### **PERJURY STATEMENT**

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

#### **PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS**

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

#### **UNDERGROUND STORAGE TANK CLEANUP FUND**

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

#### **AGENCY OVERSIGHT**

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

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

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

## REQUIREMENTS

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

RO#\_Report Name\_Year-Month-Date (e.g., RO#5555\_WorkPlan\_2005-06-14)

## Submission Instructions

- 1) Obtain User Name and Password
  - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
    - i) Send an e-mail to [\\_loptoxic@acgov.org](mailto:_loptoxic@acgov.org)
  - b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses, and the Case Numbers (RO# available in Geotracker) you will be posting for.**
- 2) Upload Files to the ftp Site
  - a) Using Internet Explorer (IE4+), go to [://alcoftp1.acgov.org](http://alcoftp1.acgov.org)
    - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
  - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
  - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
  - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
  - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
  - a) Send email to [\\_loptoxic@acgov.org](mailto:_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.

**ATTACHMENT B**  
**Additional Site Background Information**



**Palace Garage, Focused Site Conceptual Model (2013)**

	<b>DESCRIPTION</b>	<b>Data Tables</b>	<b>Graphics</b>	<b>References</b>	<b>Data Gaps</b>	<b>Work Necessary to fill data gap</b>	<b>Comments</b>
<b>Regional Setting</b>	<p><b>Geology/Stratigraphy</b> Near surface geology is characterized as alluvial fan and fluvial deposits of Holocene age. These alluvial fan deposits are brown or tan, medium dense to dense, gravelly sand or sandy gravel at depth generally fining upward to sandy or silty clay. The northwest-southeast trending Hayward fault is mapped approximately 1 mile northeast of site.</p>		<a href="#">Map from USGS report</a>	<a href="#">Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California</a> (Graymer, R.W., USGS, 2000)	--		
	<p><b>Hydrogeology</b> Site is located in the Santa Clara Valley: East Bay Plain Groundwater Basin. Listed existing beneficial uses of groundwater in this sub-basin include municipal, industrial service, industrial process, and agricultural. Water service in the site vicinity is provided by EBMUD from surface water sources from areas outside of the East Bay Plain. Since urbanization of the East Bay Plain, use of groundwater in the area of the site has decreased to almost nothing and groundwater storage has increased.</p> <p>An aquifer known as the <i>Newark Aquifer equivalent</i> is located at approximately 30 to 130 feet bgs. Aquifers of limited extent occur at depths of less than 50 feet in this unit; they comprise a water table aquifer system with relatively high vertical resistance to flow. This unit is separated from the underlying aquifers by an aquitard comprised of Old Bay Mud (Yerba Buena Mud), a relatively homogenous estuarine mud. The aquitard is typically about 50 feet thick, but pinches out to the east towards the Hayward Fault.</p> <p>Currently, groundwater in the shallow units generally flows from east to west, from the Hayward Fault towards San Francisco Bay. Groundwater level contours for the Newark aquifer equivalent indicate that shallow zone aquifers have an average horizontal gradient of about 0.002.</p>		<a href="#">East Bay Plain Map</a>	<p><a href="#">San Francisco Bay Water Quality Control Plan (Basin Plan)</a> (RWQCB, 1/18/07)</p> <p><a href="#">California's Groundwater, DWR Bulletin 118-2 - San Francisco Bay Hydrologic Region</a> (DWR, 2003)</p> <p><a href="#">Bayside Groundwater Project, Draft EIR</a> (CH2MHill, March 2005)</p> <p><a href="#">Geologic Framework of the East Bay Plain Groundwater Basin</a> (Alameda County Flood Control District, August 1993)</p> <p><a href="#">Groundwater Yield of the East Bay Plain</a> (Muir, Kenneth S., November 1996)</p>	--		
	<p><b>Groundwater Pumping</b> Public water service in the site vicinity is provided by EBMUD from surface water sources from areas outside of the East Bay Plain. Since urbanization of the East Bay Plain, use of groundwater in the area of the site has decreased to almost nothing and groundwater storage has increased.</p>			<a href="#">Groundwater Yield of the East Bay Plain</a> (Muir, Kenneth S., November 1996)	--		
	<p><b>Preferential Pathways</b> <a href="#">Well Survey</a> – Alameda County Public Works Agency (ACPWA) and California Department of Water Resources (DWR) records and well logs were reviewed to identify the location of any water wells within a 2,000-foot radius of the Site. Using ACPWA records, a total of eighty wells were identified within the survey area. Of these eighty wells, forty-nine were identified as test or monitoring wells; seven were identified as being abandoned or destroyed and twenty six were identified as being water supply wells. Of the twenty-six water supply wells, three are domestic, twenty are irrigation supply, and three are</p>	<a href="#">SRS Tables</a>	<a href="#">Sensitive Receptor Map</a>	<a href="#">Sensitive Receptor Survey</a> (Closure Solutions, 2008)	--		No apparent preferential pathways at Site.

Palace Garage, Focused Site Conceptual Model (2013)

	DESCRIPTION	Data Tables	Graphics	References	Data Gaps	Work Necessary to fill data gap	Comments
	<p>industrial supply wells. Using DWR records a total of seventy-six wells were identified within the survey area. Of these seventy-six wells, fifty-three were identified as test or monitoring wells, nine were identified as being abandoned or destroyed, and fourteen were identified as being water supply wells. Of the fourteen water supply wells one is domestic, eleven are irrigation supply, and two are industrial supply wells.</p> <p>The closest water supply wells are two industrial wells approximately 450 feet northwest (up-gradient) of the Site. The closest domestic well is approximately 1,500 feet southeast (cross-gradient) of the Site. The closest down-gradient well is an irrigation well approximately 1,400 feet southwest of the Site. No surface body waters were identified within the survey area.</p> <p><u>Utility Survey</u> – Depth to groundwater is approximately 14 to 15 feet bgs. Due to this depth, no utility trenches are anticipated to be located within groundwater and therefore no utility trenches can act as preferential pathways for groundwater at the Site.</p> <p>The City of San Leandro and Alameda County both have a storm line that runs down Washington Avenue that are located approximately 10.5 feet bgs. Oro Loma Sanitary Sewer has two sanitary sewer lines in Washington Avenue that are located approximately 8 feet bgs. EBMUD has two water lines in Washington Avenue that are located approximately 35 to 39 inches bgs. Multiple calls by Closure Solutions to PG&amp;E Engineering were made but PG&amp;E was unresponsive. Gas and Electric lines are normally buried shallow (less than 5 feet) and are therefore not anticipated to be present below groundwater at the site.</p> <p><u>Geology</u> – Regional geologic information for the vicinity of the site is reported as alluvial fan and fluvial deposits. These types of deposits have the potential to be laterally discontinuous and thus may create preferential pathways due to the possible presence of former stream channel deposits. However, based on the soils reported in the borings, no such deposit has been encountered.</p>		<p><a href="#">City Utility As-Built</a></p> <p><a href="#">EBMUD Utility Map</a></p>	<p><a href="#">Map from USGS report</a></p> <p><a href="#">Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California</a> (Graymer, R.W., USGS, 2000)</p>			
	<p><b>Nearby Release Sites</b></p> <p><u>Rogers Trucking, 14327 Washington Ave.</u> Gasoline UST leak (1998) impacting soil. City of San Leandro Case 01-2477. Global ID T0600102282. Leak discovered in 1998. Site closed in 2005. Site permitted for USTs. Site down-gradient across Washington Ave. from Palace Garage - not likely contributor.</p> <p><u>Parkside Commons Apartments, 900 143rd Ave.</u> Gasoline UST leak (1985) impacting groundwater. RWQCB Case 01S0454. Global ID T0600101050. Case closed in 1996.</p>			<p><a href="#">GeoTracker website for Global ID T0600102282</a> (California SWRCB)</p> <p><a href="#">GeoTracker website for Global ID T0600101050</a> (California SWRCB)</p> <p><a href="#">GeoTracker website for Global ID T0600101524</a> (California SWRCB)</p>	--	--	

**Palace Garage, Focused Site Conceptual Model (2013)**

	<b>DESCRIPTION</b>	<b>Data Tables</b>	<b>Graphics</b>	<b>References</b>	<b>Data Gaps</b>	<b>Work Necessary to fill data gap</b>	<b>Comments</b>
	<p><u>Washington Square, 14400 Washington Ave.</u> Diesel UST leak (1988) impacting groundwater. RWQCB Case 01-1649. Global ID T0600101524. Case closed in 1998. Excavation reported in 2000.</p> <p><u>Steelform Contracting Company, 14340 Washington Ave.</u> Gasoline UST leak (1986) impacting groundwater. City of San Leandro lead. RWQCB Case 01-1424. Global ID T0600101315. Case closed in 2000.</p>			<p><a href="#">GeoTracker website for Global ID T0600101315</a> (California SWRCB)</p>			
<b>Site Setting</b>	<p><b>Site Geology</b> Based on previous investigations, the Site is underlain by a low permeable layer of clay, silty clay and clayey silts to approximately 10 to 15 feet below ground surface (bgs). This low permeable layer is underlain by a higher permeable layer of poorly graded sands and gravel from approximately 16 feet bgs to the total depth explored of 21 feet bgs.</p>		<p><a href="#">Boring Logs</a></p>	<p><a href="#">Report of Soil and Groundwater Assessment and Proposed Work Plan For Further Assessment</a> (ALLCAL Property Services, February 1999)</p> <p><a href="#">Report of Phase II Soil and Groundwater Assessment and Proposed Work Plan For Phase III Further Assessment</a> (ALLCAL Property Services, April 1999)</p> <p><a href="#">Report of Phase III Soil and Groundwater Assessment</a> (ALLCAL Property Services, August 1999)</p> <p><a href="#">Report of Well Installation</a> (ALLCALL Property Services, June 2000)</p> <p><a href="#">Monitoring Well Installation &amp; Fourth Quarter 2002 Monitoring Report</a> (Professional Service Industries, February 2003)</p>	--		Site geology is fairly uniform and is well understood.
	<p><b>Groundwater Conditions</b> First encountered unconfined groundwater at the site ranges from approximately 15 to 16 feet bgs and static groundwater in the monitoring wells ranges from approximately 13 to 16 feet bgs. Groundwater flows to the west, southwest, and south-southwest with hydraulic gradient ranging from 0.0017 to 0.0050. Current (2Q13) data reports groundwater flow to the southwest at a gradient of 0.004.</p>	<p><a href="#">2Q13 QMR Tables</a></p>	<p><a href="#">Rose Diagram</a></p> <p><a href="#">2Q13 Groundwater Map</a></p>	<p><a href="#">Second Quarter 2013 Groundwater Monitoring Report</a> (Closure Solutions, 2013)</p>	--		Groundwater flow regime is well understood.
	<p><b>Source Area</b> A 550-gallon gasoline underground storage tank (UST) was removed from the site in 1991. During tank removal activities four small holes were observed at the top UST near the southern end. Two of the holes were pin hole-sized, the next larger hole was approximately ¼-inch in diameter and the largest was approximately ½-inch in diameter. No</p>	<p><a href="#">Soil Tables</a></p>	<p><a href="#">Soil Maps</a></p>	<p><a href="#">Underground Storage Tank Removal</a> (Century West Engineering Corporation, March 1991)</p>	Source area not defined up-gradient and poorly defined onsite. Soil Vapor data collected in August 2010 indicates a secondary source may exist.	- Evaluate shallow soils for residual contamination and a potential secondary source. Advance four soil borings in the vicinity of the former UST and dispenser for collection of shallow soil samples. Samples will be collected at 3, 5, 7 and 10 feet bgs.	Further soil sampling, particularly onsite, may be advisable in order to assess

Palace Garage, Focused Site Conceptual Model (2013)

	DESCRIPTION	Data Tables	Graphics	References	Data Gaps	Work Necessary to fill data gap	Comments
	<p>evidence of gasoline flow from these holes was observed. Field screening of soil samples collected from beneath the tank revealed the presence of hydrocarbon contamination in the soil. Over-excavation was performed to a reported depth of approximately 18 to 20 feet bgs. Soil analytical results report very low (19 mg/kg TPHg) to nondetectable levels of hydrocarbons within the resulting excavation. The resulting excavation was lined with plastic and backfilled with pea gravel.</p> <p>Subsequent investigations included the installation of 4 monitoring wells and the drilling and sampling of 17 borings. Based on soil data obtained from the borings, impacted capillary fringe zone soil extends at least 40 feet downgradient of the former dispenser pad and UST in the vicinity of soil boring SB-5 (at concentrations of 1,900 mg/kg TPHg and 4.3 mg/kg benzene). Relative concentrations of BTEX constituents (e.g. 4.3 mg/kg Benzene, 170 mg/kg xylenes) suggest that the hydrocarbon source is attenuating.</p>			<p><a href="#">Report of Soil and Groundwater Assessment and Proposed Work Plan For Further Assessment</a> (ALLCAL Property Services, February 1999)</p> <p><a href="#">Report of Phase II Soil and Groundwater Assessment and Proposed Work Plan For Phase III Further Assessment</a> (ALLCAL Property Services, April 1999)</p> <p><a href="#">Report of Phase III Soil and Groundwater Assessment</a> (ALLCAL Property Services, August 1999)</p> <p><a href="#">Report of Well Installation</a> (ALLCALL Property Services, June 2000)</p> <p><a href="#">Monitoring Well Installation &amp; Fourth Quarter 2002 Monitoring Report</a> (Professional Service Industries, February 2003)</p>		Soil samples will be analyzed for GRO, and BTEX compounds by EPA Method 8260B	possible continuing source and for data for CAP evaluation.
	<p><b>Dissolved plume</b> Concentrations in plume appear to fluctuate seasonally - with lower groundwater levels associated with lower contaminant concentrations. Impact consists of gasoline constituents, primarily reported as TPHg (currently [May 2013] up to 16,000 ug/l) and BTEX compounds (currently [May 2013] up to 140 ug/l benzene). MTBE analysis was discontinued in November 2008 because concentrations were below Water Quality Objectives. Naphthalene analysis began in February 2013 (790 ug/l, May 2013). The dissolved plume appears to be relatively stable and is defined (by wells MW-3 and MW-4) in the downgradient direction less than 200 feet from the source area.</p>	<a href="#">2Q13 QMR Tables</a>	<a href="#">2Q13 Groundwater Map</a>	<a href="#">Second Quarter 2013 Groundwater Monitoring Report</a> (Closure Solutions, 2013)	Groundwater not defined up-gradient. Defined cross-gradient by grab-samples from borings.	- Possible groundwater sampling upgradient to define the lateral extent of the plume	Not clear if regulator will require wells.
	<p><b>Remediation</b> Monitored Natural Attenuation. Draft CAP proposing short term DPE was submitted April, 2013.</p>			<a href="#">Second Quarter 2013 Groundwater Monitoring Report</a> (Closure Solutions, 2013)	--		
	<p><b>Evaluation of potential impacts to sensitive receptors</b> <u>Water Supply Wells (ingestion)</u> The closest water supply wells are two industrial wells approximately 450 feet northwest (up-gradient) of the Site. The closest domestic well is approximately 1,500 feet southeast (cross-gradient) of the Site. The closest down-gradient well is an irrigational well approximately 1,400 feet southwest of the Site. The groundwater plume extends less than 200 feet southwest of the Site and appears to be stable. This data</p>	<a href="#">SRS Tables</a>	<p><a href="#">Sensitive Receptor Map</a></p> <p><a href="#">2Q2013 Groundwater Map</a></p>	<p><a href="#">Sensitive Receptor Survey</a> (Closure Solutions, 2008)</p> <p><a href="#">Second Quarter 2013 Groundwater Monitoring Report</a> (Closure Solutions, 2013)</p>	--	-	

Palace Garage, Focused Site Conceptual Model (2013)

	DESCRIPTION	Data Tables	Graphics	References	Data Gaps	Work Necessary to fill data gap	Comments
	suggests that no known water supply well is threatened by the groundwater plume.						
	<p><u>Vapor transport (inhalation)</u>                      Shallow soil vapor sampling conducted in August 2010 reported benzene concentrations well above RWQCB established ESLs (85,000 ug/m3). Near surface clays approximately 10 to 15 feet thick present across Site provide significant impediment to vertical transport of vapors from the impacted areas - groundwater and capillary fringe soils.</p>		Soil Vapor Probe Analytical Results, August 2010	<a href="#">Soil Vapor Testing and Additional Assessment Report</a> (Closure Solutions, 2010)	Evaluate shallow soils for LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air. Soil vapor data collected during a previous investigation, at approximately 5 feet bgs in the vicinity of the former dispenser and existing building, exceeds the screening levels for a bioattenuation zone from 5 to 10 feet bgs as described in scenarios 3 and 4 of the LTCP criteria.	Advance four soil borings in the vicinity of the former UST and dispenser (Figure 2) for collection of shallow soil vapor samples. Borings will be advanced to approximately 5 feet bgs and vapor samples collected using field protocols described in the Department of Toxic Substances Control's <i>Final Vapor Intrusion Guidance</i> (October 2011) document. Soil vapor samples will be analyzed for GRO and BTEX compounds by EPA Method TO-15 and oxygen, carbon dioxide, helium, methane and nitrogen by ASTM D-1946	
	<p><u>Direct Contact (dermal)</u>                      Soil samples from 0 to 10 feet bgs have not been collected during previous Site investigations. Therefore no data for benzene concentrations is available to compare to LTCP criteria for direct contact and outdoor air exposure</p>				Evaluate shallow soils for LTCP Media Specific Criteria for Direct Contact and Outdoor Air Exposure	Soil samples from 0 to 10 feet bgs have not been collected during previous Site investigations. Therefore no data for benzene concentrations is available to compare to LTCP criteria for direct contact and outdoor air exposure. Soil samples will be analyzed for GRO, and BTEX compounds by EPA Method 8260B.	

**ATTACHMENT C**  
**Soil and Soil Vapor Laboratory Analytical Reports**



25712 Commercentre Drive  
Lake Forest, California 92630  
949.297.5020 Phone  
949.297.5027 Fax

05 November 2013

Matt Farris  
Innovex-Environmental Management, Inc.  
2300 Clayton Rd. Suite 1435  
Concord, CA 94520  
RE: Palace Garage

Enclosed are the results of analyses for samples received by the laboratory on 10/09/13 10:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Daniel Chavez  
Project Manager





25712 Commercentre Drive  
 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

Innovex-Environmental Management, Inc.  
 2300 Clayton Rd. Suite 1435  
 Concord CA, 94520

Project: Palace Garage  
 Project Number: [none]  
 Project Manager: Matt Farris

**Reported:**  
 11/05/13 11:37

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-19-3	T132159-01	Soil	10/07/13 09:10	10/09/13 10:20
SB-19-5	T132159-02	Soil	10/07/13 09:15	10/09/13 10:20
SB-19-10	T132159-04	Soil	10/07/13 09:15	10/09/13 10:20
SB-20-3	T132159-05	Soil	10/07/13 09:45	10/09/13 10:20
SB-20-5	T132159-06	Soil	10/07/13 09:50	10/09/13 10:20
SB-20-7	T132159-07	Soil	10/07/13 09:50	10/09/13 10:20
SB-20-10	T132159-08	Soil	10/07/13 09:50	10/09/13 10:20
SB-21-3	T132159-09	Soil	10/07/13 10:10	10/09/13 10:20
SB-21-5	T132159-10	Soil	10/07/13 10:15	10/09/13 10:20
SB-21-10	T132159-12	Soil	10/07/13 10:15	10/09/13 10:20
SB-22-3	T132159-13	Soil	10/07/13 10:40	10/09/13 10:20
SB-22-5	T132159-14	Soil	10/07/13 10:45	10/09/13 10:20
SB-22-7	T132159-15	Soil	10/07/13 10:45	10/09/13 10:20
SB-22-10	T132159-16	Soil	10/07/13 10:45	10/09/13 10:20
COMPOSITE	T132159-17	Soil	10/07/13 00:00	10/09/13 10:20

SunStar Laboratories, Inc.

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Daniel Chavez, Project Manager



25712 Commercentre Drive  
 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

Innovex-Environmental Management, Inc. 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Matt Farris	<b>Reported:</b> 11/05/13 11:37
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**SB-19-3**  
**T132159-01 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

Naphthalene	ND	0.0050	mg/kg	1	3100922	10/09/13	10/10/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.0095</b>	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
<b>C6-C12 (GRO)</b>	<b>1.0</b>	0.50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		103 %	85.5-116		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		102 %	81.2-123		"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		109 %	95.7-135		"	"	"	"	

SunStar Laboratories, Inc.

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Daniel Chavez, Project Manager



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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

Innovex-Environmental Management, Inc. 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Matt Farris	<b>Reported:</b> 11/05/13 11:37
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**SB-19-5**  
**T132159-02 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

Naphthalene	ND	0.0050	mg/kg	1	3100922	10/09/13	10/10/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.0067</b>	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
<b>C6-C12 (GRO)</b>	<b>0.69</b>	0.50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %	85.5-116		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		103 %	81.2-123		"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		114 %	95.7-135		"	"	"	"	

SunStar Laboratories, Inc.

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Daniel Chavez, Project Manager



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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

Innovex-Environmental Management, Inc. 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Matt Farris	<b>Reported:</b> 11/05/13 11:37
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**SB-19-10**  
**T132159-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

Naphthalene	ND	0.0050	mg/kg	1	3100922	10/09/13	10/10/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
<b>C6-C12 (GRO)</b>	<b>0.66</b>	<b>0.50</b>	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		<i>103 %</i>	<i>85.5-116</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>102 %</i>	<i>81.2-123</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Dibromofluoromethane</i>		<i>109 %</i>	<i>95.7-135</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

SunStar Laboratories, Inc.

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Daniel Chavez, Project Manager



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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

Innovex-Environmental Management, Inc. 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Matt Farris	<b>Reported:</b> 11/05/13 11:37
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**SB-20-3**  
**T132159-05 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

Naphthalene	0.048	0.0050	mg/kg	1	3100922	10/09/13	10/10/13	EPA 8260B	
Benzene	0.097	0.0050	"	"	"	"	"	"	
Toluene	0.053	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.52	0.0050	"	"	"	"	"	"	
m,p-Xylene	1.1	0.010	"	"	"	"	"	"	
o-Xylene	0.54	0.0050	"	"	"	"	"	"	
C6-C12 (GRO)	10	0.50	"	"	"	"	"	"	
Surrogate: Toluene-d8		106 %	85.5-116		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	81.2-123		"	"	"	"	
Surrogate: Dibromofluoromethane		118 %	95.7-135		"	"	"	"	

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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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**SB-20-5**  
**T132159-06 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

<b>Naphthalene</b>	<b>1.4</b>	0.0050	mg/kg	1	3100922	10/09/13	10/10/13	EPA 8260B	E
<b>Benzene</b>	<b>0.056</b>	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.53</b>	0.0050	"	"	"	"	"	"	
<b>m,p-Xylene</b>	<b>0.15</b>	0.010	"	"	"	"	"	"	
<b>o-Xylene</b>	<b>0.016</b>	0.0050	"	"	"	"	"	"	
<b>C6-C12 (GRO)</b>	<b>14</b>	0.50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		106 %		85.5-116		"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		104 %		81.2-123		"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		112 %		95.7-135		"	"	"	

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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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**SB-20-7**  
**T132159-07 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

<b>Naphthalene</b>	<b>6.8</b>	0.25	mg/kg	50	3101729	10/17/13	10/18/13	EPA 8260B	
<b>Benzene</b>	<b>0.12</b>	0.0050	"	1	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>7.3</b>	0.25	"	50	"	"	"	"	
<b>m,p-Xylene</b>	<b>11</b>	0.50	"	"	"	"	"	"	
<b>o-Xylene</b>	<b>0.036</b>	0.0050	"	1	"	"	"	"	
<b>C6-C12 (GRO)</b>	<b>550</b>	25	"	50	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		100 %		85.5-116	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.0 %		81.2-123	"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		150 %		95.7-135	"	"	"	"	S-GC

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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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**SB-20-10**  
**T132159-08 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

<b>Naphthalene</b>	<b>29</b>	0.50	mg/kg	100	3100922	10/09/13	10/10/13	EPA 8260B	
<b>Benzene</b>	<b>0.35</b>	0.0050	"	1	"	"	"	"	
<b>Toluene</b>	<b>0.15</b>	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>51</b>	0.50	"	100	"	"	"	"	
<b>m,p-Xylene</b>	<b>100</b>	1.0	"	"	"	"	"	"	
<b>o-Xylene</b>	<b>29</b>	0.50	"	"	"	"	"	"	
<b>C6-C12 (GRO)</b>	<b>3500</b>	50	"	"	"	"	"	"	E
<i>Surrogate: Toluene-d8</i>		99.9 %		85.5-116	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.1 %		81.2-123	"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		112 %		95.7-135	"	"	"	"	

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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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**SB-21-3**  
**T132159-09 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

Naphthalene	ND	0.0050	mg/kg	1	3100922	10/09/13	10/11/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.027</b>	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
C6-C12 (GRO)	ND	0.50	"	"	"	"	"	"	
Surrogate: Toluene-d8		96.9 %	85.5-116		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.6 %	81.2-123		"	"	"	"	
Surrogate: Dibromofluoromethane		53.7 %	95.7-135		"	"	"	"	S-GC

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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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**SB-21-5**  
**T132159-10 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

Naphthalene	ND	0.0050	mg/kg	1	3100922	10/09/13	10/11/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
<b>Toluene</b>	<b>0.050</b>	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
C6-C12 (GRO)	ND	0.50	"	"	"	"	"	"	
Surrogate: Toluene-d8		101 %	85.5-116		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.4 %	81.2-123		"	"	"	"	
Surrogate: Dibromofluoromethane		121 %	95.7-135		"	"	"	"	

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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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**SB-21-10**  
**T132159-12 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

Naphthalene	ND	0.0050	mg/kg	1	3100922	10/09/13	10/11/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
C6-C12 (GRO)	ND	0.50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %	85.5-116		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.6 %	81.2-123		"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		118 %	95.7-135		"	"	"	"	

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25712 Commercentre Drive  
 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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**SB-22-3**  
**T132159-13 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

Naphthalene	ND	0.0050	mg/kg	1	3100922	10/09/13	10/10/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.036</b>	0.0050	"	"	"	"	"	"	
<b>m,p-Xylene</b>	<b>0.012</b>	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
<b>C6-C12 (GRO)</b>	<b>1.6</b>	0.50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		105 %	85.5-116		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		99.4 %	81.2-123		"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		111 %	95.7-135		"	"	"	"	

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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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**SB-22-5**  
**T132159-14 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

<b>Naphthalene</b>	<b>3.7</b>	0.025	mg/kg	5	3100922	10/09/13	10/10/13	EPA 8260B	E
<b>Benzene</b>	<b>0.016</b>	0.0050	"	1	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>1.2</b>	0.025	"	5	"	"	"	"	
<b>m,p-Xylene</b>	<b>1.9</b>	0.050	"	"	"	"	"	"	
<b>o-Xylene</b>	<b>0.0084</b>	0.0050	"	1	"	"	"	"	
<b>C6-C12 (GRO)</b>	<b>73</b>	2.5	"	5	"	"	"	"	
Surrogate: Toluene-d8		98.4 %		85.5-116	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %		81.2-123	"	"	"	"	
Surrogate: Dibromofluoromethane		114 %		95.7-135	"	"	"	"	

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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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**SB-22-7**  
**T132159-15 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

<b>Naphthalene</b>	<b>0.28</b>	0.0050	mg/kg	1	3101729	10/17/13	10/21/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.089</b>	0.0050	"	"	"	"	"	"	
<b>m,p-Xylene</b>	<b>0.12</b>	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
<b>C6-C12 (GRO)</b>	<b>8.0</b>	0.50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.4 %	85.5-116		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		103 %	81.2-123		"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		115 %	95.7-135		"	"	"	"	

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25712 Commercentre Drive  
 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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**SB-22-10**  
**T132159-16 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Volatile Organic Compounds by EPA Method 8260B**

<b>Naphthalene</b>	<b>0.41</b>	0.0050	mg/kg	1	3100922	10/09/13	10/11/13	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.017</b>	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
<b>C6-C12 (GRO)</b>	<b>1.6</b>	0.50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		103 %	85.5-116		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		97.6 %	81.2-123		"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		117 %	95.7-135		"	"	"	"	

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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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**COMPOSITE**  
**T132159-17 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**SunStar Laboratories, Inc.**

**Metals by EPA 6010B**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Lead	8.3	3.0	mg/kg	1	3102223	10/22/13	10/23/13	EPA 6010B	

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 949.297.5020 Phone  
 949.297.5027 Fax

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**Metals by EPA 6010B - Quality Control**  
**SunStar Laboratories, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 3102223 - EPA 3051</b>										
<b>Blank (3102223-BLK1)</b> Prepared: 10/22/13 Analyzed: 10/23/13										
Lead	ND	3.0	mg/kg							
<b>LCS (3102223-BS1)</b> Prepared: 10/22/13 Analyzed: 10/23/13										
Lead	98.0	3.0	mg/kg	100		98.0	75-125			
<b>Matrix Spike (3102223-MS1)</b> Source: T132277-01 Prepared: 10/22/13 Analyzed: 10/23/13										
Lead	103	3.0	mg/kg	100	6.13	97.2	75-125			
<b>Matrix Spike Dup (3102223-MSD1)</b> Source: T132277-01 Prepared: 10/22/13 Analyzed: 10/23/13										
Lead	113	3.0	mg/kg	100	6.13	107	75-125	8.69	20	

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 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

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 2300 Clayton Rd. Suite 1435  
 Concord CA, 94520

Project: Palace Garage  
 Project Number: [none]  
 Project Manager: Matt Farris

Reported:  
 11/05/13 11:37

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**SunStar Laboratories, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3100922 - EPA 5030 GCMS**

**Blank (3100922-BLK1)** Prepared: 10/09/13 Analyzed: 10/10/13

Naphthalene	ND	0.0050	mg/kg							
Benzene	ND	0.0050	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
m,p-Xylene	ND	0.010	"							
o-Xylene	ND	0.0050	"							
C6-C12 (GRO)	ND	0.50	"							
<i>Surrogate: Toluene-d8</i>	0.0401		"	0.0399		100	85.5-116			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0372		"	0.0399		93.1	81.2-123			
<i>Surrogate: Dibromofluoromethane</i>	0.0355		"	0.0399		88.9	95.7-135			S-GC

**LCS (3100922-BS1)** Prepared: 10/09/13 Analyzed: 10/11/13

Benzene	0.101	0.0050	mg/kg	0.0998		101	75-125			
Toluene	0.0922	0.0050	"	0.0998		92.4	75-125			
<i>Surrogate: Toluene-d8</i>	0.0377		"	0.0399		94.4	85.5-116			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0379		"	0.0399		94.9	81.2-123			
<i>Surrogate: Dibromofluoromethane</i>	0.0476		"	0.0399		119	95.7-135			

**Matrix Spike (3100922-MS1)** Source: T132159-01 Prepared: 10/09/13 Analyzed: 10/10/13

Benzene	0.100	0.0050	mg/kg	0.0998	ND	101	75-125			
Toluene	0.105	0.0050	"	0.0998	0.00952	95.8	75-125			
<i>Surrogate: Toluene-d8</i>	0.0408		"	0.0399		102	85.5-116			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0396		"	0.0399		99.3	81.2-123			
<i>Surrogate: Dibromofluoromethane</i>	0.0498		"	0.0399		125	95.7-135			

**Matrix Spike Dup (3100922-MSD1)** Source: T132159-01 Prepared: 10/09/13 Analyzed: 10/10/13

Benzene	0.101	0.0050	mg/kg	0.0996	ND	102	75-125	1.04	20	
Toluene	0.0991	0.0050	"	0.0996	0.00952	89.9	75-125	5.91	20	
<i>Surrogate: Toluene-d8</i>	0.0374		"	0.0398		93.8	85.5-116			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0388		"	0.0398		97.4	81.2-123			
<i>Surrogate: Dibromofluoromethane</i>	0.0511		"	0.0398		128	95.7-135			

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Daniel Chavez, Project Manager



25712 Commercentre Drive  
 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

Innovex-Environmental Management, Inc.  
 2300 Clayton Rd. Suite 1435  
 Concord CA, 94520

Project: Palace Garage  
 Project Number: [none]  
 Project Manager: Matt Farris

Reported:  
 11/05/13 11:37

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**

**SunStar Laboratories, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3101729 - EPA 5030 GCMS**

**Blank (3101729-BLK1)**

Prepared: 10/17/13 Analyzed: 10/18/13

Naphthalene	ND	0.0050	mg/kg							
Benzene	ND	0.0050	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
m,p-Xylene	ND	0.010	"							
o-Xylene	ND	0.0050	"							
C6-C12 (GRO)	ND	0.50	"							
Surrogate: Toluene-d8	0.0408		"	0.0400		102	85.5-116			
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0400		95.1	81.2-123			
Surrogate: Dibromofluoromethane	0.0568		"	0.0400		142	95.7-135			S-GC

**LCS (3101729-BS1)**

Prepared: 10/17/13 Analyzed: 10/18/13

Chlorobenzene	0.0947	0.0050	mg/kg	0.100		94.7	75-125			
1,1-Dichloroethene	0.110	0.0050	"	0.100		110	75-125			
Trichloroethene	0.103	0.0050	"	0.100		103	75-125			
Benzene	0.114	0.0050	"	0.100		114	75-125			
Toluene	0.102	0.0050	"	0.100		102	75-125			
Surrogate: Toluene-d8	0.0370		"	0.0400		92.5	85.5-116			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		96.9	81.2-123			
Surrogate: Dibromofluoromethane	0.0623		"	0.0400		156	95.7-135			S-GC

**Matrix Spike (3101729-MS1)**

Source: T132233-05

Prepared: 10/17/13 Analyzed: 10/18/13

Chlorobenzene	0.0991	0.0050	mg/kg	0.100	ND	99.1	75-125			
1,1-Dichloroethene	0.123	0.0050	"	0.100	ND	123	75-125			
Trichloroethene	0.104	0.0050	"	0.100	ND	104	75-125			
Benzene	0.114	0.0050	"	0.100	ND	114	75-125			
Toluene	0.102	0.0050	"	0.100	ND	102	75-125			
Surrogate: Toluene-d8	0.0381		"	0.0400		95.2	85.5-116			
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.6	81.2-123			
Surrogate: Dibromofluoromethane	0.0529		"	0.0400		132	95.7-135			

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Daniel Chavez, Project Manager



25712 Commercentre Drive  
 Lake Forest, California 92630  
 949.297.5020 Phone  
 949.297.5027 Fax

Innovex-Environmental Management, Inc.  
 2300 Clayton Rd. Suite 1435  
 Concord CA, 94520

Project: Palace Garage  
 Project Number: [none]  
 Project Manager: Matt Farris

Reported:  
 11/05/13 11:37

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**

**SunStar Laboratories, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3101729 - EPA 5030 GCMS**

**Matrix Spike Dup (3101729-MSD1)**

Source: T132233-05

Prepared: 10/17/13

Analyzed: 10/18/13

Chlorobenzene	0.105	0.0050	mg/kg	0.0998	ND	105	75-125	5.58	20	
1,1-Dichloroethene	0.126	0.0050	"	0.0998	ND	126	75-125	2.89	20	QM-05
Trichloroethene	0.114	0.0050	"	0.0998	ND	114	75-125	8.99	20	
Benzene	0.114	0.0050	"	0.0998	ND	114	75-125	0.200	20	
Toluene	0.103	0.0050	"	0.0998	ND	104	75-125	1.70	20	
Surrogate: Toluene-d8	0.0385		"	0.0399		96.4	85.5-116			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0399		98.9	81.2-123			
Surrogate: Dibromofluoromethane	0.0561		"	0.0399		140	95.7-135			S-GC

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Daniel Chavez, Project Manager

Innovex-Environmental Management, Inc.  
2300 Clayton Rd. Suite 1435  
Concord CA, 94520

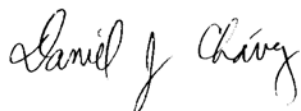
Project: Palace Garage  
Project Number: [none]  
Project Manager: Matt Farris

**Reported:**  
11/05/13 11:37

### Notes and Definitions

- S-GC Surrogate recovery outside of established control limits. The data was accepted based on valid recovery of the remaining surrogate(s).
- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS was within acceptance criteria. The data is acceptable as no negative impact on data is expected.
- E The concentration indicated for this analyte is above the calibration range of the instrument. This value should be considered as an estimate as the actual value may be higher.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

SunStar Laboratories, Inc.



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Daniel Chavez, Project Manager

SunStar Laboratories, Inc.  
 25712 Commercentre Dr  
 Lake Forest, CA 92630  
 949-297-5020

### Chain of Custody Record

Client: INNOVEX  
 Address: 4600 Northgate #230, Sacramento  
 Phone: 916 760-7579 Fax: \_\_\_\_\_  
 Project Manager: Mi FARRIS

Date: 10/7/13 Page: \_\_\_\_\_ Of \_\_\_\_\_  
 Project Name: Palace Garage  
 Collector: \_\_\_\_\_ Client Project #: \_\_\_\_\_  
 Batch #: T132159 EDF #: \_\_\_\_\_

Sample ID	Date Sampled	Time	Sample Type	Container Type	8260 - GPO - BTEX	8260 + OXY	8260 BTEX, OXY only	8270	8021 BTEX	8015M (gasoline)	8015M (diesel)	8015M Ext./Carbon Chain	6010/7000 Title 22 Metals	Laboratory ID #	Comments/Preservative	Total # of containers
SB-19-3	10/7/13	9:10	Soil	Sleeve	XX									01		
SB-19-5		9:15			XX									02		
SB-19-7		9:15												03	Hold	
SB-19-10		9:15			X									04		
SB-20-3		9:45			XX									05		
SB-20-5		9:50			XX									06		
SB-20-7		9:50												07	Hold	
SB-20-10		9:50			X									08		
SB-21-3		10:10			XX									09		
SB-21-5		10:15			XX									10		
SB-21-7		10:15												11	Hold	
SB-21-10	10/7/13	10:15	Soil	Sleeve	X									12		

Relinquished by: (signature) <u>Weth Farris</u>	Date / Time <u>10/8/13 13:55</u>	Received by: (signature) <u>Jessie</u>	Date / Time <u>10/8/13 13:55</u>	Total # of containers Chain of Custody seals <u>Y/N/NA</u> Seals intact <u>Y/N/NA</u> Received good condition/cold <u>3/4</u> Turn around time: <u>STD</u>	Notes <b>STD. TAT</b> <u>10-9-13</u> 
Relinquished by: (signature) <u>GSO</u>	Date / Time <u>10-9-13 10:20</u>	Received by: (signature) <u>[Signature]</u>	Date / Time <u>10-9-13 10:20</u>		
Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time		

Sample disposal Instructions: Disposal @ \$2.00 each \_\_\_\_\_ Return to client \_\_\_\_\_ Pickup \_\_\_\_\_

COC 112530

SunStar Laboratories, Inc.  
 25712 Commercentre Dr  
 Lake Forest, CA 92630  
 949-297-5020

### Chain of Custody Record


Client: INNOVEX  
 Address: 4600 Northgate Blvd #220, Sacramento  
 Phone: 916 760-7579 Fax: \_\_\_\_\_  
 Project Manager: M. Farris

Date: 10/7/13 Page: 2 Of 2  
 Project Name: Palace Garage  
 Collector: M. Farris Client Project #: \_\_\_\_\_  
 Batch #: T132159 EDF #: \_\_\_\_\_

Sample ID	Date Sampled	Time	Sample Type	Container Type	8260 - GDO - BTEX	8260 + OXY	8260 BTEX, OXY only	8270	8021 BTEX	8015M (gasoline)	8015M (diesel)	8015M Ext./Carbon Chain	6010/7000 Title 22 Metals	Laboratory ID #	Comments/Preservative	Total # of containers
SB-22-3	10/7/13	10:40			X									13		
SB-22-5		10:45			X									14		
SB-22-7		10:45												15	Hold	
SB-22-10	10/7/13	10:45			X									16		

Relinquished by: (signature) <u>M. Farris</u>	Date / Time <u>10/8/13 1355</u>	Received by: (signature) <u>Jess</u>	Date / Time <u>10/8/13 1355</u>
Relinquished by: (signature) <u>GSO</u>	Date / Time <u>10-9-13 10:20</u>	Received by: (signature) <u>[Signature]</u>	Date / Time <u>10-9-13 10:20</u>
Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time

Total # of containers \_\_\_\_\_  
 Chain of Custody seals Y/N/NA  
 Seals intact? Y/N/NA  
 Received good condition/cold 3,4  
 Turn around time: STD

Notes  
**STD. TAT**  
  
10-9-13

Sample disposal Instructions: Disposal @ \$2.00 each \_\_\_\_\_ Return to client \_\_\_\_\_ Pickup \_\_\_\_\_

COC 112531

## SAMPLE RECEIVING REVIEW SHEET

BATCH # T132159

Client Name: INNOVEX

Project: PALACE GARAGE

Received by: SUNNY

Date/Time Received: 10-9-13 / 10:20

Delivered by :  Client  SunStar Courier  GSO  FedEx  Other \_\_\_\_\_

Total number of coolers received 1 Temp criteria = 6°C > 0°C (no frozen containers)

Temperature: cooler #1 3.6 °C +/- the CF (- 0.2°C) = 3.4 °C corrected temperature

cooler #2 \_\_\_\_\_ °C +/- the CF (- 0.2°C) = \_\_\_\_\_ °C corrected temperature

cooler #3 \_\_\_\_\_ °C +/- the CF (- 0.2°C) = \_\_\_\_\_ °C corrected temperature

Samples outside temp. but received on ice, w/in 6 hours of final sampling.  Yes  No\*  N/A

Custody Seals Intact on Cooler/Sample  Yes  No\*  N/A

Sample Containers Intact  Yes  No\*

Sample labels match COC ID's  Yes  No\*

Total number of containers received match COC  Yes  No\*

Proper containers received for analyses requested on COC  Yes  No\*

Proper preservative indicated on COC/containers for analyses requested  Yes  No\*  N/A

Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times.  Yes  No\*

\* Complete Non-Conformance Receiving Sheet if checked Cooler/Sample Review - Initials and date SE 10-9-13

Comments:

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10/28/2013

Mr. Matt Farris

INNOVEX Environmental Management

4600 Northgate Blvd

#230

Sacramento CA 95834

Project Name:

Project #:

Workorder #: 1310285

Dear Mr. Matt Farris

The following report includes the data for the above referenced project for sample(s) received on 10/14/2013 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: Karen Stempson at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Karen Stempson

Project Manager

**WORK ORDER #: 1310285**

## Work Order Summary

**CLIENT:** Mr. Matt Farris  
INNOVEX Environmental  
Management  
4600 Northgate Blvd  
#230  
Sacramento, CA 95834  
916-760-7579

**BILL TO:** Accounts Payable  
INNOVEX Environmental  
Management, Inc. (formerly known as  
Closure Solutions)  
2300 Clayton Rd.

**PHONE:**

**FAX:**

**DATE RECEIVED:** 10/14/2013

**DATE COMPLETED:** 10/25/2013

**P.O. #**

**PROJECT #**

**CONTACT:** Karen Stempson

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
01A	SV-4	Modified TO-17 VI
02A	SV-4D	Modified TO-17 VI
03A	SV-6	Modified TO-17 VI
04A	SV-5	Modified TO-17 VI
05A	Lab Blank	Modified TO-17 VI
06A	CCV	Modified TO-17 VI
07A	LCS	Modified TO-17 VI
07AA	LCSD	Modified TO-17 VI

CERTIFIED BY:



Technical Director

DATE: 10/28/13

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291,  
TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, VA NELAP - 460197, WA NELAP - C935

Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005, Effective date: 10/18/2012, Expiration date: 10/17/2013.

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 EPA Method TO-17 (VI Tubes)  
INNOVEX Environmental Management  
Workorder# 1310285**

Four TO-17 VI Tube samples were received on October 14, 2013. 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</=30% with 2 allowed out up to 40%	VOC list: %RSD</=30% with 2 allowed out up to 40% SVOC list: %RSD</=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**

There were no receiving discrepancies.

**Analytical Notes**

A sampling volume of 0.150 L was used to convert ng to ug/m3 for the associated Lab Blank.

The field surrogate, Naphthalene-d8, in sample SV-5 exceeded the laboratory limits of 50-150%.

**Definition of Data Qualifying Flags**

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

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

performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

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

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

N - The identification is based on presumptive evidence.

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

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

### Summary of Detected Compounds EPA METHOD TO-17

**Client Sample ID: SV-4**

**Lab ID#: 1310285-01A**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	0.50	3.3	1300 E	8400 E

**Client Sample ID: SV-4D**

**Lab ID#: 1310285-02A**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	0.50	3.3	1000 E	6600 E

**Client Sample ID: SV-6**

**Lab ID#: 1310285-03A**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	0.50	3.3	4.9	33

**Client Sample ID: SV-5**

**Lab ID#: 1310285-04A**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	0.50	3.3	1.2	8.3



Air Toxics

Client Sample ID: SV-4

Lab ID#: 1310285-01A

EPA METHOD TO-17

File Name:	f101536	Date of Extraction: N/A	Date of Collection: 10/11/13 9:40:00 AM
Dil. Factor:	1.00	Date of Analysis: 10/16/13 05:18 AM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	0.50	3.3	1300 E	8400 E

Air Sample Volume(L): 0.150

E = Exceeds instrument calibration range.

Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	107	50-150



Air Toxics

Client Sample ID: SV-4D

Lab ID#: 1310285-02A

EPA METHOD TO-17

File Name:	f101537	Date of Extraction: N/A	Date of Collection: 10/11/13 9:50:00 AM
Dil. Factor:	1.00	Date of Analysis: 10/16/13 05:58 AM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	0.50	3.3	1000 E	6600 E

Air Sample Volume(L): 0.150

E = Exceeds instrument calibration range.

Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	81	50-150



Air Toxics

Client Sample ID: SV-6

Lab ID#: 1310285-03A

EPA METHOD TO-17

File Name:	f101538	Date of Extraction: N/A	Date of Collection: 10/11/13 10:30:00 A
Dil. Factor:	1.00	Date of Analysis: 10/16/13 06:38 AM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	0.50	3.3	4.9	33

Air Sample Volume(L): 0.150  
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	61	50-150





Air Toxics

Client Sample ID: SV-5

Lab ID#: 1310285-04A

EPA METHOD TO-17

File Name:	f101539	Date of Extraction: N/A	Date of Collection: 10/11/13 10:40:00 A
Dil. Factor:	1.00	Date of Analysis: 10/16/13 07:18 AM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	0.50	3.3	1.2	8.3

Air Sample Volume(L): 0.150

Q = Exceeds Quality Control limits.

Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	39 Q	50-150

Client Sample ID: Lab Blank

Lab ID#: 1310285-05A

EPA METHOD TO-17

File Name:	f101517	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/15/13 03:11 PM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	0.50	3.3	Not Detected	Not Detected

Air Sample Volume(L): 0.150  
 Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Naphthalene-d8	100	50-150



Air Toxics

Client Sample ID: CCV

Lab ID#: 1310285-06A

EPA METHOD TO-17

File Name:	f101514	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/15/13 12:57 PM	

Compound	%Recovery
Naphthalene	98

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

Surrogates	%Recovery	Method Limits
Naphthalene-d8	101	50-150



Air Toxics

Client Sample ID: LCS

Lab ID#: 1310285-07A

EPA METHOD TO-17

File Name:	f101515	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/15/13 01:39 PM	

Compound	%Recovery	Method Limits
Naphthalene	87	70-130

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

Surrogates	%Recovery	Method Limits
Naphthalene-d8	99	50-150



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1310285-07AA

EPA METHOD TO-17

File Name:	f101516	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/15/13 02:21 PM	

Compound	%Recovery	Method Limits
Naphthalene	87	70-130

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

Surrogates	%Recovery	Method Limits
Naphthalene-d8	98	50-150

10/25/2013

Mr. Matt Farris  
INNOVEX Environmental Management  
4600 Northgate Blvd  
#230  
Sacramento CA 95834

Project Name:  
Project #:  
Workorder #: 1310287A

Dear Mr. Matt Farris

The following report includes the data for the above referenced project for sample(s) received on 10/14/2013 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: Karen Stempson at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Karen Stempson  
Project Manager

**WORK ORDER #: 1310287A**

Work Order Summary

<b>CLIENT:</b>	Mr. Matt Farris INNOVEX Environmental Management 4600 Northgate Blvd #230 Sacramento, CA 95834 916-760-7579	<b>BILL TO:</b>	Accounts Payable INNOVEX Environmental Management, Inc. (formerly known as Closure Solutions) 2300 Clayton Rd.
<b>PHONE:</b>		<b>P.O. #</b>	
<b>FAX:</b>		<b>PROJECT #</b>	
<b>DATE RECEIVED:</b>	10/14/2013	<b>CONTACT:</b>	Karen Stempson
<b>DATE COMPLETED:</b>	10/25/2013		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SV-6	Modified TO-15	2.4 "Hg	15 psi
02A	SV-5	Modified TO-15	1.8 "Hg	14.7 psi
03A	SV-4	Modified TO-15	4.1 "Hg	14.7 psi
04A	SV-4D	Modified TO-15	1.6 "Hg	15.5 psi
05A	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:   
 Technical Director

DATE: 10/25/13

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, VA NELAP - 460197, WA NELAP - C935  
 Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2012, Expiration date: 10/17/2013.

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

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

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



**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**INNOVEX Environmental Management**  
**Workorder# 1310287A**

Four 1 Liter Summa Canister samples were received on October 14, 2013. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

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

**Receiving Notes**

The Chain of Custody was missing method information. ATL proceeded with the analysis as per the original contract or verbal agreement.

**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.

Dilution was performed on samples SV-6, SV-4 and SV-4D due to the presence of high level 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, LOD, or MDL value. See data page for project specific U-flag definition.

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

N - The identification is based on presumptive evidence.

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

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



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

**Client Sample ID: SV-6**

**Lab ID#: 1310287A-01A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	220	390	830	1500
TPH ref. to Gasoline (MW=100)	11000	530000	45000	2200000

**Client Sample ID: SV-5**

**Lab ID#: 1310287A-02A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.1	1.2	4.0	4.7
Ethyl Benzene	1.1	1.8	4.6	7.9
m,p-Xylene	1.1	4.0	4.6	17
o-Xylene	1.1	1.3	4.6	5.8
TPH ref. to Gasoline (MW=100)	53	1200	220	4900

**Client Sample ID: SV-4**

**Lab ID#: 1310287A-03A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	460	20000	1500	66000
Toluene	460	1100	1700	4200
Ethyl Benzene	460	62000	2000	270000
m,p-Xylene	460	110000	2000	490000
o-Xylene	460	16000	2000	70000
TPH ref. to Gasoline (MW=100)	23000	8300000	95000	34000000

**Client Sample ID: SV-4D**

**Lab ID#: 1310287A-04A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	430	23000	1400	73000
Toluene	430	1800	1600	6800
Ethyl Benzene	430	69000	1900	300000
m,p-Xylene	430	120000	1900	530000

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

**Client Sample ID: SV-4D**

**Lab ID#: 1310287A-04A**

o-Xylene	430	17000	1900	74000
TPH ref. to Gasoline (MW=100)	22000	800000	89000	3300000

Client Sample ID: SV-6

Lab ID#: 1310287A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p102214	Date of Collection:	10/11/13 8:50:00 AM
Dil. Factor:	440	Date of Analysis:	10/22/13 06:34 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	220	Not Detected	700	Not Detected
Toluene	220	390	830	1500
Ethyl Benzene	220	Not Detected	960	Not Detected
m,p-Xylene	220	Not Detected	960	Not Detected
o-Xylene	220	Not Detected	960	Not Detected
TPH ref. to Gasoline (MW=100)	11000	530000	45000	2200000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	118	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: SV-5

Lab ID#: 1310287A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p102211	Date of Collection:	10/11/13 8:40:00 AM
Dil. Factor:	2.13	Date of Analysis:	10/22/13 04:35 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.1	Not Detected	3.4	Not Detected
Toluene	1.1	1.2	4.0	4.7
Ethyl Benzene	1.1	1.8	4.6	7.9
m,p-Xylene	1.1	4.0	4.6	17
o-Xylene	1.1	1.3	4.6	5.8
TPH ref. to Gasoline (MW=100)	53	1200	220	4900

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	98	70-130

Client Sample ID: SV-4

Lab ID#: 1310287A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p102213	Date of Collection:	10/11/13 9:15:00 AM
Dil. Factor:	928	Date of Analysis:	10/22/13 05:48 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	460	20000	1500	66000
Toluene	460	1100	1700	4200
Ethyl Benzene	460	62000	2000	270000
m,p-Xylene	460	110000	2000	490000
o-Xylene	460	16000	2000	70000
TPH ref. to Gasoline (MW=100)	23000	8300000	95000	34000000

Q = Exceeds Quality Control limits of 70% to 130%, due to matrix effects.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	163 Q	70-130
4-Bromofluorobenzene	92	70-130

Client Sample ID: SV-4D

Lab ID#: 1310287A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p102212	Date of Collection:	10/11/13 9:30:00 AM
Dil. Factor:	868	Date of Analysis:	10/22/13 05:05 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	430	23000	1400	73000
Toluene	430	1800	1600	6800
Ethyl Benzene	430	69000	1900	300000
m,p-Xylene	430	120000	1900	530000
o-Xylene	430	17000	1900	74000
TPH ref. to Gasoline (MW=100)	22000	8000000	89000	33000000

Q = Exceeds Quality Control limits of 70% to 130%, due to matrix effects.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	181 Q	70-130
4-Bromofluorobenzene	91	70-130

Client Sample ID: Lab Blank

Lab ID#: 1310287A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p102209	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	10/22/13 02:58 PM

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

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	97	70-130

Client Sample ID: CCV

Lab ID#: 1310287A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p102202	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/22/13 09:03 AM

Compound	%Recovery
Benzene	91
Toluene	92
Ethyl Benzene	93
m,p-Xylene	95
o-Xylene	94
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	106	70-130



Client Sample ID: LCS

Lab ID#: 1310287A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p102203	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/22/13 09:45 AM

Compound	%Recovery	Method Limits
Benzene	89	70-130
Toluene	89	70-130
Ethyl Benzene	89	70-130
m,p-Xylene	93	70-130
o-Xylene	92	70-130
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: LCSD

Lab ID#: 1310287A-07AA

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

File Name:	p102204	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/22/13 10:14 AM

Compound	%Recovery	Method Limits
Benzene	90	70-130
Toluene	90	70-130
Ethyl Benzene	92	70-130
m,p-Xylene	96	70-130
o-Xylene	95	70-130
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	104	70-130

10/29/2013  
Mr. Matt Farris  
INNOVEX Environmental Management  
4600 Northgate Blvd  
#230  
Sacramento CA 95834

Project Name:  
Project #:  
Workorder #: 1310287B

Dear Mr. Matt Farris

The following report includes the data for the above referenced project for sample(s) received on 10/14/2013 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: Karen Stempson at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Karen Stempson  
Project Manager

**WORK ORDER #: 1310287B**

Work Order Summary

<b>CLIENT:</b>	Mr. Matt Farris INNOVEX Environmental Management 4600 Northgate Blvd #230 Sacramento, CA 95834 916-760-7579	<b>BILL TO:</b>	Accounts Payable INNOVEX Environmental Management, Inc. (formerly known as Closure Solutions) 2300 Clayton Rd.
<b>PHONE:</b>		<b>P.O. #</b>	
<b>FAX:</b>		<b>PROJECT #</b>	
<b>DATE RECEIVED:</b>	10/14/2013	<b>CONTACT:</b>	Karen Stempson
<b>DATE COMPLETED:</b>	10/29/2013		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SV-6	Modified ASTM D-1946	2.4 "Hg	15 psi
02A	SV-5	Modified ASTM D-1946	1.8 "Hg	14.7 psi
03A	SV-4	Modified ASTM D-1946	4.1 "Hg	14.7 psi
04A	SV-4D	Modified ASTM D-1946	1.6 "Hg	15.5 psi
05A	Lab Blank	Modified ASTM D-1946	NA	NA
05B	Lab Blank	Modified ASTM D-1946	NA	NA
06A	LCS	Modified ASTM D-1946	NA	NA
06AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:   
 Technical Director

DATE: 10/29/13

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, VA NELAP - 460197, WA NELAP - C935  
 Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2012, Expiration date: 10/17/2013.

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

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 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020



**LABORATORY NARRATIVE**  
**Modified ASTM D-1946**  
**INNOVEX Environmental Management**  
**Workorder# 1310287B**

Four 1 Liter Summa Canister samples were received on October 14, 2013. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

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

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

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

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
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**

The Chain of Custody was missing method information. ATL proceeded with the analysis as per the original contract or verbal agreement.

**Analytical Notes**

The reporting limit for Nitrogen was raised from 0.10% to 0.50%.

**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: SV-6**

**Lab ID#: 1310287B-01A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	2.2
Nitrogen	1.1	84
Carbon Dioxide	0.022	12
Methane	0.00022	2.0

**Client Sample ID: SV-5**

**Lab ID#: 1310287B-02A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.21	5.0
Nitrogen	1.1	88
Carbon Dioxide	0.021	6.6
Methane	0.00021	0.00059

**Client Sample ID: SV-4**

**Lab ID#: 1310287B-03A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.23	2.2
Nitrogen	1.2	79
Carbon Dioxide	0.023	13
Methane	0.00023	5.4

**Client Sample ID: SV-4D**

**Lab ID#: 1310287B-04A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	1.8
Nitrogen	1.1	78
Carbon Dioxide	0.022	14
Methane	0.00022	5.5
Helium	0.11	0.17



Air Toxics

Client Sample ID: SV-6

Lab ID#: 1310287B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10102321	Date of Collection:	10/11/13 8:50:00 AM
Dil. Factor:	2.20	Date of Analysis:	10/23/13 06:44 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	2.2
Nitrogen	1.1	84
Carbon Dioxide	0.022	12
Methane	0.00022	2.0
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister





Air Toxics

Client Sample ID: SV-5

Lab ID#: 1310287B-02A

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

File Name:	10102325	Date of Collection:	10/11/13 8:40:00 AM
Dil. Factor:	2.13	Date of Analysis:	10/23/13 08:24 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	5.0
Nitrogen	1.1	88
Carbon Dioxide	0.021	6.6
Methane	0.00021	0.00059
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: SV-4

Lab ID#: 1310287B-03A

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

File Name:	10102322	Date of Collection:	10/11/13 9:15:00 AM
Dil. Factor:	2.32	Date of Analysis:	10/23/13 07:05 PM

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.23	2.2
Nitrogen	1.2	79
Carbon Dioxide	0.023	13
Methane	0.00023	5.4
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: SV-4D

Lab ID#: 1310287B-04A

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

File Name:	10102323	Date of Collection:	10/11/13 9:30:00 AM
Dil. Factor:	2.17	Date of Analysis:	10/23/13 07:28 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	1.8
Nitrogen	1.1	78
Carbon Dioxide	0.022	14
Methane	0.00022	5.5
Helium	0.11	0.17

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1310287B-05A

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

File Name:	10102309	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	10/23/13 01:03 PM

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.10	Not Detected
Nitrogen	0.50	Not Detected
Carbon Dioxide	0.010	Not Detected
Methane	0.00010	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1310287B-05B

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

File Name:	10102304c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	10/23/13 10:51 AM

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

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCS

Lab ID#: 1310287B-06A

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

File Name:	10102302	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/23/13 09:24 AM

Compound	%Recovery	Method Limits
Oxygen	102	85-115
Nitrogen	100	85-115
Carbon Dioxide	102	85-115
Methane	101	85-115
Helium	99	85-115

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1310287B-06AA

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

File Name:	10102329	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	10/23/13 09:54 PM

Compound	%Recovery	Method Limits
Oxygen	100	85-115
Nitrogen	100	85-115
Carbon Dioxide	101	85-115
Methane	101	85-115
Helium	98	85-115

Container Type: NA - Not Applicable

**ATTACHMENT D**  
**LTCP Screening Criteria**



### 3. Direct Contact and Outdoor Air Exposure

This policy describes conditions where direct contact with contaminated soil or inhalation of contaminants volatilized to outdoor air poses a low threat to human health. Release sites where human exposure may occur satisfy the media-specific criteria for direct contact and outdoor air exposure and shall be considered low-threat if they meet any of the following:

- a. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs). The concentration limits for 0 to 5 feet bgs protect from ingestion of soil, dermal contact with soil, and inhalation of volatile soil emissions and inhalation of particulate emissions. The 5 to 10 feet bgs concentration limits protect from inhalation of volatile soil emissions. Both the 0 to 5 feet bgs concentration limits and the 5 to 10 feet bgs concentration limits for the appropriate site classification (Residential or Commercial/Industrial) shall be satisfied. In addition, if exposure to construction workers or utility trench workers are reasonably anticipated, the concentration limits for Utility Worker shall also be satisfied; or
- b. Maximum concentrations of petroleum constituents in soil are less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health; or
- c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health.

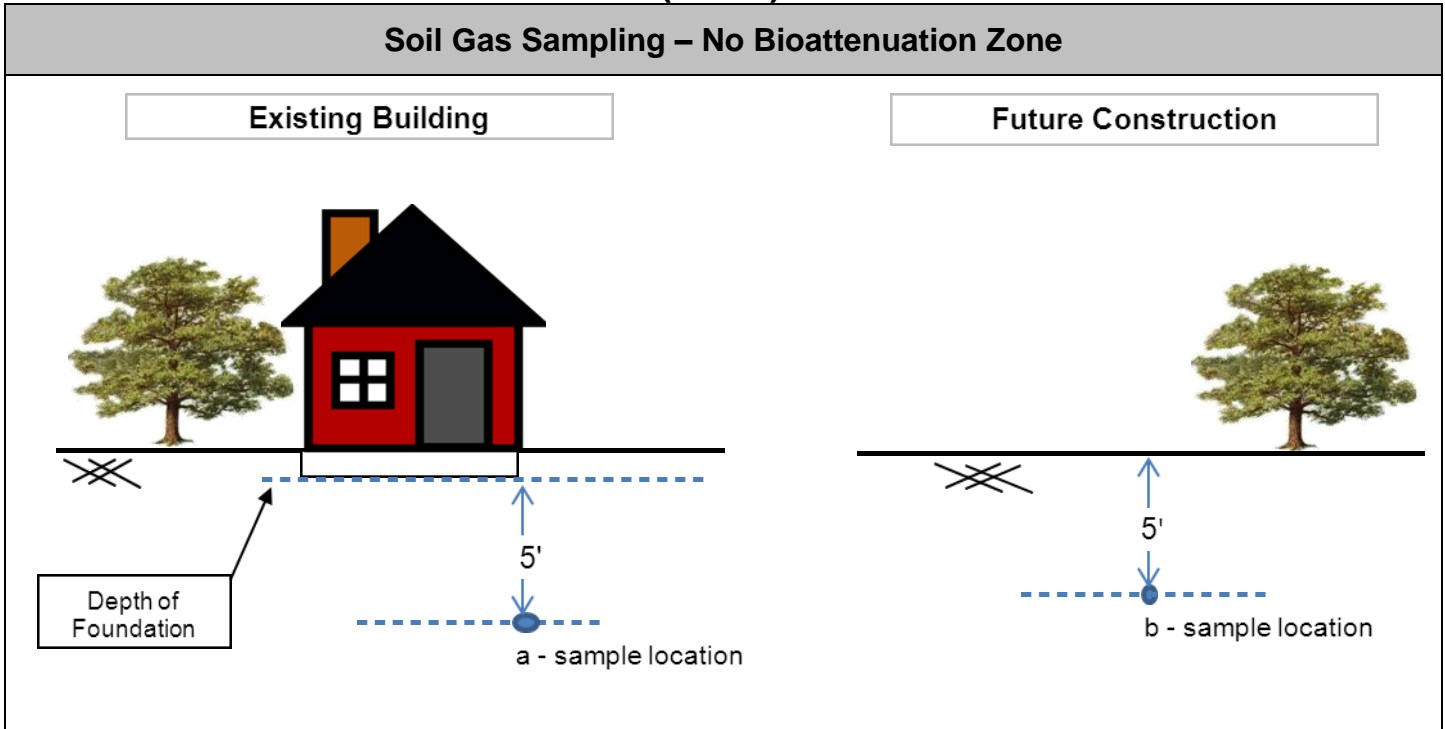
**Table 1**  
Concentrations of Petroleum Constituents in Soil That Will Have No Significant Risk of Adversely Affecting Human Health

Chemical	Residential		Commercial/ Industrial		Utility Worker
	0 to 5 feet bgs mg/kg	Volatilization to outdoor air (5 to 10 feet bgs) mg/kg	0 to 5 feet bgs mg/kg	Volatilization to outdoor air (5 to 10 feet bgs) mg/kg	0 to 10 feet bgs mg/kg
<b>Benzene</b>	1.9	2.8	8.2	12	14
<b>Ethylbenzene</b>	21	32	89	134	314
<b>Naphthalene</b>	9.7	9.7	45	45	219
<b>PAH<sup>1</sup></b>	0.063	NA	0.68	NA	4.5

Notes:

1. Based on the seven carcinogenic poly-aromatic hydrocarbons (PAHs) as benzo(a)pyrene toxicity equivalent [BaPe]. Sampling and analysis for PAH is only necessary where soil is affected by either waste oil or Bunker C fuel.
2. The area of impacted soil where a particular exposure occurs is 25 by 25 meters (approximately 82 by 82 feet) or less.
3. NA = not applicable
4. mg/kg = milligrams per kilogram

## Appendix 4 Scenario 4 - Direct Measurement of Soil Gas Concentrations (1 of 2)



The criteria in the table below apply unless the requirements for a bioattenuation zone, established below, are satisfied.

When applying the criteria below, the soil gas sample must be obtained from the following locations:

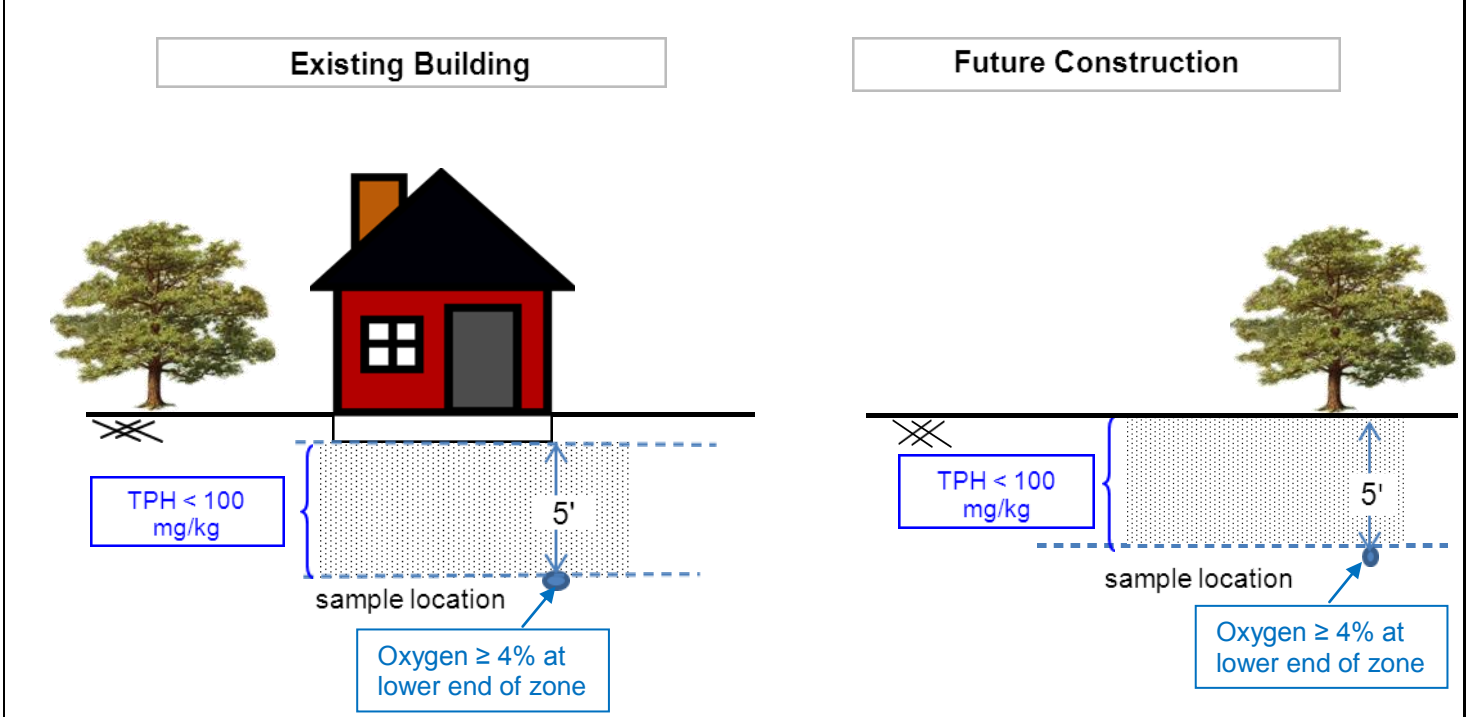
- a. Beneath or adjacent to an existing building: The soil gas sample shall be collected at least five feet below the bottom of the building foundation.
- b. Future construction: The soil gas sample shall be collected from at least five feet below ground surface.

<b>Soil Gas Criteria (<math>\mu\text{g}/\text{m}^3</math>)</b>		
	<b>No Bioattenuation Zone*</b>	
	<b>Residential</b>	<b>Commercial</b>
<b>Constituent</b>	<b>Soil Gas Concentration (<math>\mu\text{g}/\text{m}^3</math>)</b>	
Benzene	< 85	< 280
Ethylbenzene	<1,100	<3,600
Naphthalene	< 93	< 310

\*For the no bioattenuation zone, the screening criteria are same as the California Human Health Screening Levels (CHHSLs) with engineered fill below sub-slab.

## Appendix 4 Scenario 4 - Direct Measurement of Soil Gas Concentrations (2 of 2)

### Soil Gas Sampling – With Bioattenuation Zone



The criteria in the table below apply if the following requirements for a biattenuation zone are satisfied:

1. There is a minimum of five vertical feet of soil between the soil vapor measurement and the foundation of an existing building or ground surface of future construction.
2. TPH (TPHg + TPHd) is less than 100 mg/kg (measured in at least two depths within the five-foot zone.)
3. Oxygen is greater than or equal to four percent measured at the bottom of the five-foot zone.

#### Soil Gas Criteria ( $\mu\text{g}/\text{m}^3$ )

	With Bioattenuation Zone**	
	Residential	Commercial
Constituent	Soil Gas Concentration ( $\mu\text{g}/\text{m}^3$ )	
Benzene	< 85,000	< 280,000
Ethylbenzene	<1,100,000	<3,600,000
Naphthalene	< 93,000	< 310,000

\*\*A 1000-fold bioattenuation of petroleum vapors is assumed for the bioattenuation zone.