

March 30, 2011

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**

RECEIVED

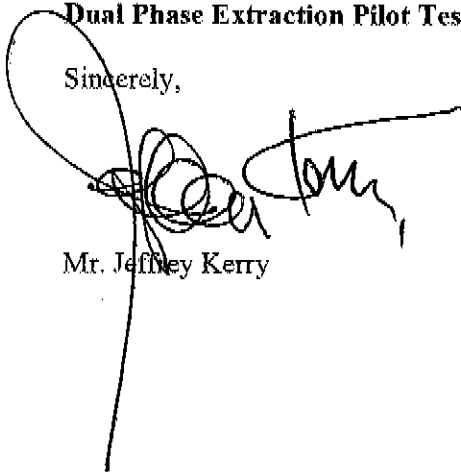
4:53 pm, Apr 16, 2012

Alameda County
Environmental Health

Dear Mr. Detterman,

I declare, under penalty of perjury, that the information and/or recommendations contained in the **Dual Phase Extraction Pilot Test Report** are true and correct to the best of my knowledge.

Sincerely,



Mr. Jeffrey Kerry



April 13, 2012

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

**Re: Dual Phase Extraction Pilot Test 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, Closure Solutions, Inc. (Closure Solutions) has prepared this *Dual Phase Extraction Pilot Test Report* (Report) for the Palace Garage Site located at 14336 Washington Avenue, San Leandro, California (the Site, Figure 1). The dual-phase extraction (DPE) pilot test was conducted in accordance with Closure Solutions' July 22, 2011 *Additional Investigation and Remediation Pilot Test Work Plan* (Work Plan). The Work Plan was conditionally approved by the Alameda County Environmental Health (ACEH) on December 15, 2011. The Work Plan approval letter is presented as Attachment A.

The pilot test was conducted to evaluate whether DPE would be a viable technology to remediate soil and groundwater beneath the Site. The pilot test was performed from Tuesday, February 21st through Saturday, February 25th, 2012. Presented below is the site background, a description of the pilot test scope of work, a discussion of the pilot test results, and our conclusion and recommendations.

1.0 SITE BACKGROUND

A 550-gallon gasoline underground storage tank (UST) was removed from the Site in 1991. Subsequent investigations included the installation of 3 monitoring wells and the drilling of 15 borings. Based on data obtained from the wells and borings, impacted unsaturated-zone soil is confined to the area of the former dispenser pad and UST. The primary groundwater flow direction is toward the southwest.

In December 2002, Professional Service Industries, Inc. (PSI) conducted a soil and groundwater investigation to evaluate the lateral extent of petroleum hydrocarbons in the soil and groundwater beneath the Site. Borings SB-16 and SB-17 were advanced to between 20 and 24 feet below ground surface (bgs). Boring SB-16 was converted into monitoring well MW-4. Concentration of total petroleum hydrocarbons as gasoline (TPHg) and gasoline related contaminants were detected only in soil from boring SB-17 and groundwater from wells MW-1 and MW-2. The locations of the monitoring wells and soil borings are presented on Figure 2.

Closure Solutions conducted a Sensitive Receptor Survey to identify all water supply wells and sensitive receptors within a 2,000-foot radius of the Site. The closest water supply wells are two industrial wells approximately 450 feet northwest (cross-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 located approximately 1,400 feet southwest of the Site. No surface water bodies were identified within a 2,000-foot radius of the Site. Results of the Sensitive Receptor Survey are presented in the *Sensitive Receptor Survey* report dated August 27, 2008.

Closure Solutions prepared and submitted a *Site Conceptual Model* (SCM) dated September 30, 2008 for the Site. The preparation of the SCM was requested by ACEH in their letter dated September 2, 2008.

In an email from ACEH dated June 12, 2009, Mr. Steve Plunkett approved the reduction of groundwater monitoring to a semi-annual basis conducted in second and fourth quarters and the elimination of fuel oxygenates from the suite of laboratory analytes.

On October 15, 2009, Closure Solutions discussed the Site status with ACEH. Data gaps presented in the SCM and other information that ACEH would require for site closure were identified. Closure Solutions submitted the *Soil Vapor Probe and Additional Assessment Work Plan* on November 13, 2009 to address the work necessary to move the Site toward closure.

On July 26, 2010 a Closure Solutions representative oversaw the installation and sampling of three temporary soil vapor probes (SV-1 through SV-3) and the advancement of one downgradient soil boring (SB-18). A *Soil Vapor Testing and Additional Assessment Report* describing field activities and discussing analytical soil and soil vapor results was submitted to the ACEH on August 30, 2010.

On January 24, 2012, Closure Solutions installed groundwater monitoring wells MW-5 and MW-6 at the Site. The wells were installed to further delineate the hydrocarbon contaminant plume beneath the Site and to assist with calculating a radius of influence during pilot testing.

Closure Solutions continues to conduct groundwater monitoring and sampling on a semi-annual basis during second and fourth quarters.

2.0 SITE HYDROGEOLOGY AND HYDROCARBON DISTRIBUTION

Soils beneath the Site consist of clays, silty clays and clayey silts between near ground surface and approximately 16 feet bgs, poorly graded sands and gravels between approximately 16 and 21 feet bgs, and clays between approximately 21 and 25 feet bgs, the total depth explored. The saturated water bearing zone encountered beneath the Site is considered to be unconfined, with depth to groundwater measured in the existing well network ranging seasonally between 12 to 16 feet bgs. Groundwater flow direction has ranged from west to south-southwest with an average gradient of 0.003 feet per foot (ft/ft).

The plume is defined to low concentrations by down-gradient wells MW-3 through MW-5 with the main area of concern identified down-gradient from the former UST, in the vicinity of wells MW-1 and MW-6. Contaminant concentrations appear to fluctuate seasonally, with lower groundwater contaminant concentrations related to lower groundwater levels. Hydrocarbon concentrations in well MW-1, from the past four sampling events, have been reported as high as 18,000 micrograms per liter (ug/L) for gasoline range organics (GRO) and 300 ug/L for benzene. Well MW-6 was installed in January 2012 and sampled in February 2012, and contained concentrations of 17,000 ug/L GRO and 340 ug/L benzene.

3.0 SCOPE OF WORK

To evaluate DPE as a potential remedial option, Closure Solutions conducted a pilot test at the Site from February 21 through February 25, 2012. The test was performed for a total of approximately 44 hours.

The DPE test was performed to:

- Evaluate the effectiveness of DPE technology to mitigate impacted soil and groundwater;
- Collect data for possible DPE system design;
- Estimate soil vapor and groundwater extraction rates;

- Calculate the approximate vacuum radius-of-influence and groundwater drawdown rates; and
- Collect and analyze influent soil vapor samples from selected extraction wells.

3.1 PILOT TEST EQUIPMENT

To perform the DPE pilot test, a trailer-mounted 25-horsepower liquid-ring vacuum pump and thermal oxidizer were used to extract and treat soil vapor from select site wells. The 25-horsepower liquid-ring vacuum pump is capable of achieving vacuum rates of up to 28.5 inches of mercury vacuum (in Hg) and flow rates of up to 400 cubic feet per minute (cfm). During DPE testing, soil vapor and groundwater were extracted from the wells by applying a vacuum to the well casings through a 1.5-inch diameter ‘stinger’ hose inserted through a rubber coupling installed on top of each of the well heads. The stinger hose was then incrementally lowered into the groundwater to maintain water flow and avoid a ‘deadheading’ situation (where groundwater stops flowing up the stinger). After extraction from the wells, the soil vapor/groundwater process stream was passed through a vapor/liquid separator, where groundwater was separated out and soil vapor was routed to the thermal oxidizer for abatement. The vacuum pump was powered by a generator, and the generator and oxidizer were fueled by propane stored in a 499-gallon propane tank. Extracted groundwater generated during the test was temporarily stored on-site in a 6,500 gallon Baker tank pending disposal to an appropriately licensed disposal facility. Treated vapor was discharged to the atmosphere under a 5-Day Pilot Test Exemption from the Bay Area Air Quality Management District.

Equipment used for field monitoring during the pilot test included:

- A hot-wire anemometer to measure soil vapor extraction flow rates;
- Magnehelic™ gauges to measure vacuum in observation wells;
- A photo-ionization detector (PID) to measure total hydrocarbons in the extracted vapor streams;
- An electronic water level indicator for measuring depth-to-water levels; and
- A sampling pump and Tedlar bags for vapor sample collection

3.2 DESCRIPTION OF TEST WELLS

Wells MW-1 and MW-6 were used as extraction wells during the pilot test. The extraction wells are constructed from 2-inch diameter schedule 40 polyvinyl chloride (PVC) blank casing with a

0.010-inch PVC well screen. The screened interval for well MW-1 is 10 feet in length, extending from approximately 14 feet to 24 feet bgs. The screened interval for well MW-6 is 7 feet in length, extending from approximately 13 feet to 20 feet bgs. In addition to well MW-2, the two extraction wells were also used as observation wells to measure vacuum influence and depth to water. Well locations are shown on Figure 2.

3.3 FIELD MEASUREMENTS AND SAMPLE COLLECTION

The pilot test was conducted over a span of five days with a total operating time of approximately 44 hours. Testing was performed during normal daytime business hours due to Site access restrictions and to eliminate the risk of overfilling the 6,500-gallon Baker tank during overnight periods of unmanned equipment operation. Field data was collected from the DPE test equipment and from Site extraction and observation wells to assess test performance. The following data was recorded during field operations:

- System hour meter readings
- System vacuum (upstream of vapor/liquid separator) and well head vacuum (inches of Mercury [in Hg])
- Total system influent airflow in feet per minute (fpm)
- Total groundwater extracted (gallons)
- Temperatures of extracted vapor streams at the thermal oxidizer, as well as before and after oxidation (°F)
- Influent hydrocarbon vapor concentrations in parts per million by volume (ppmv)
- Vacuum readings of selected monitoring wells in inches of water (in WC)
- Depth to water (DTW) in feet

Tables 1 and 2 summarize the field data collected; DPE Pilot Test Field Data Sheets are included in Attachment B.

In addition to the field parameters monitored, soil vapor samples were collected periodically from the influent stream of the thermal oxidizer unit. A total of seven soil vapor samples were

collected during pilot test operations. Two vapor samples were collected during extraction from well MW-1 and five vapor samples were collected during extraction from MW-6.

Samples were collected in 1-liter Tedlar bags, consistent with general pilot test and operation and maintenance practices. Collected soil vapor samples were analyzed by SunStar Laboratories of Lake Forest, California for Total Petroleum Hydrocarbons as Gasoline (TPH-g), and benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8260B in Air. Laboratory analytical data for collected vapor samples is presented in Table 3. Certified laboratory analytical reports are presented in Attachment C.

4.0 PILOT TEST RESULTS

During the pilot test, soil vapor flow rates, groundwater extraction flow rates, induced vacuum and pressure readings, and depth to water measurements were collected to evaluate overall DPE system performance. Pilot test data and an evaluation of test results are presented below.

4.1 VAPOR EXTRACTION FLOW RATES

Influent soil vapor flow rates measured during testing ranged from 16.4 to 53.3 cfm. The liquid ring vacuum pump generated vacuums ranging from 18 to 21 in Hg at the system inlet manifold, with corresponding vacuums of approximately 9.0 to 14.0 in Hg observed at the extraction wellheads. Flow rates and vacuum readings are summarized in Table 1.

4.2 GROUNDWATER EXTRACTION FLOW RATES

Groundwater extraction rates measured during the pilot test were recorded from a graduated sight glass installed on the exterior of the vapor/liquid separator. Groundwater extraction rates measured while extracting from well MW-1, ranged from 3.75 to 5 gallons per minute (gpm). From monitoring well MW-6, measured extraction rates ranged from 0.5 to 2.75 gpm. A total of approximately 4,320 gallons of groundwater were produced during the course of the test, at an average removal rate of approximately 1.94 gpm. Groundwater flow rates are summarized in Table 4.

4.3 INDUCED VACUUM READINGS

As part of calculating a radius of influence for Site wells, induced vacuum readings were measured in observation wells during pilot testing. During extraction from well MW-1, induced vacuum readings were collected from observation wells MW-2 (100 feet away) and MW-6 (21

feet away). While extracting from well MW-6, induced vacuum readings were collected from observation wells MW-1 (21 feet away) and MW-2 (121 feet away). Values for the induced vacuums are provided in Table 2.

For the period that MW-1 served as the extraction well, vacuum influence was measured in observation well MW-2 at a maximum value of 0.03 in WC, and in well MW-6 at a maximum value of 0.40 in WC.

For the period that MW-6 served as the extraction well, vacuum influence was measured in observation well MW-1 at a maximum value of 4.0 in WC, and in well MW-2 at a maximum value of 0.02 in WC.

4.4 DEPTH TO WATER MEASUREMENTS

Depth to water measurements were collected from wells MW-1, MW-2, and MW-6 prior to initiating the DPE pilot test to record static groundwater elevations. DTW measurements are presented in Table 2.

On the first day of extraction testing from well MW-1, a maximum water level draw-down was observed in well MW-6, where the groundwater depth increased by 0.31 feet after approximately six hours of testing. During that same period, the groundwater depth increased in well MW-2 by 0.02 ft.

During the second through fifth days of extraction testing from well MW-6, a maximum water level draw-down of 0.31 feet was observed on the third day of testing in well MW-1. The maximum water level draw-down measured in well MW-2 during that time was 0.03 ft.

4.5 EFFECTIVE RADIUS OF INFLUENCE

In order to evaluate an effective radius of influence for DPE from Site wells, Closure Solutions first measured the distance between the extraction and observation wells. After measuring the distances between wells, Closure Solutions applied a vacuum to the extraction wells and measured vacuum influence in observation wells using MagnehelicTM gauges.

The effective radius of influence for a DPE system can be based on an observed vacuum of approximately 1% to 0.1% of the vacuum applied at the extraction well. Using 1% of the applied vacuum rate is a very conservative approach, especially for sites with high applied vacuums using a liquid-ring vacuum pump. Our evaluation used 0.1% of the applied vacuum

rate to define the extent at which DPE effectively captures soil vapor from the subsurface. An alternative approach to estimate effective vacuum influence relies on the measurement of *any* (e.g., >0.005 inches of water) vacuum in an observation well, since actual vacuum measurement indicates the subsurface is under vacuum.

4.5.1 Extraction Well MW-1

DPE testing was conducted from well MW-1 using wells MW-2 and MW-6 as observation wells. The observation wells are located approximately 100 feet and 21 feet away from MW-1, respectively. Induced vacuums were observed in MW-2 at a maximum of 0.03 in WC, and in MW-6 at a maximum of 0.40 in WC. Due to the limited duration of the test performed and the low induced vacuum rates observed in wells MW-2 and MW-6, an effective radius of influence for DPE was not calculated from MW-1.

4.5.2 Extraction Well MW-6

On the second through fifth days of testing, DPE was conducted from well MW-6 using wells MW-1 and MW-2 as observation wells. The observation wells are located approximately 21 feet and 121 feet away from MW-6, respectively. During this period, induced vacuums observed in MW-1 ranged from 3.0 to 4.0 in WC and vacuums observed in MW-2 ranged from 0.01 to 0.02 in WC. Based on the maximum observed vacuum rate of 4.0 in WC at well MW-1 and the distance between MW-6 and MW-1, the radius of influence for DPE performed from MW-6 is estimated to be approximately 35 feet.

5.0 ANALYTICAL RESULTS AND HYDROCARBON MASS REMOVAL

During the course of the pilot test, soil vapor samples were periodically collected for laboratory analysis from a sampling port located on the influent piping of the thermal oxidizer. The analytical results were used to calculate soil vapor mass removal rates. Based on the vapor sample analytical data, a total of approximately 104.21 lbs of TPHg, 0.62 lbs of benzene, and 8.41 lbs of total BTEX compounds were removed during the five day pilot test (Table 5).

As shown on Table 5, the quantity of hydrocarbon mass removed during extraction from well MW-1 on the first day of testing was very low. A total of approximately 3 lbs of hydrocarbons were removed during the first 5 hours of operation. The low hydrocarbon mass removal rate was likely the result of an inability to sufficiently dewater the subsurface to expose saturated soils for vapor extraction. Extraction from well MW-6 during the second through fifth day of the pilot test yielded much higher vapor-phase hydrocarbon removal rates, with corresponding lower

groundwater extraction rates. Although wells MW-1 and MW-6 are located roughly adjacent to each other and constructed in similar soil types, the screen interval for MW-1 is three feet longer and is placed approximately four feet deeper than MW-6, which may explain the higher groundwater extraction rates observed from that well during DPE testing.

6.0 DPE PILOT TEST CONCLUSION

Pilot testing conducted from MW-1 yielded groundwater extraction rates that were too high to effectively perform DPE from the well. As a result of the high groundwater extraction rates, subsurface soils could not be effectively dewatered to allow remediation via vapor extraction. It is likely hydrocarbon mass removal rates would have increased had groundwater extraction rates been lower.

Pilot testing from well MW-6, which is constructed with a shorter screened interval and installed to a shallower total depth, produced average groundwater extraction rates that were roughly two-thirds less than the average rate observed during testing from MW-1. Subsequently, vapor-phase hydrocarbon concentrations were three to six times greater than those observed during testing from MW-1. The technology was successful in lowering the groundwater table in the vicinity of well MW-6 and exposing the capillary fringe or “smear” zone. Vapor extraction flow rates from well MW-6 ranged between 26 and 53 cfm during the test, which is considered within acceptable ranges for a DPE system. The vapor extraction radius of influence for MW-6 is estimated to be approximately 35 feet. Based on the results of testing performed from MW-6, it appears that DPE can successfully be performed at the Site from appropriately-screened wells installed to a depth of 20 feet bgs or less.

7.0 RECOMMENDATIONS

Based on the results of the DPE pilot test, it appears that this technology could successfully remediate the remaining residual hydrocarbons in soil and groundwater beneath the Site in a relatively short period of time. Vapor-phase hydrocarbon removal rates achieved during testing demonstrate that sufficient extractable mass exists in the subsurface, and that it can be successfully removed via DPE. Groundwater extraction rates observed during testing from MW-6 were within acceptable limits, and appeared to decrease over time. Given the success of the DPE test, Closure Solutions recommends implementing a longer-term DPE operation at the Site using a temporary DPE system. This approach offers flexibility in the overall remedial approach by allowing for extension of the remedial action as needed without the expense of full scale DPE system installation. This recommendation is a cost-effective plan designed to reduce residual

hydrocarbon concentrations in soil and groundwater to the point that it can be demonstrated that water quality objectives will be reached within a reasonable time frame, and the case can be considered for no further action status.

8.0 LIMITATIONS

This report is based on Site conditions, data, and other information available as of the date of the report, and the conclusions and 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 Closure Solutions by Kerry & Associates and their previous consultants. Closure Solutions has relied on this information as furnished, and is neither responsible for nor has confirmed the accuracy of this information. Analytical data used to prepare this report has been provided by an approved California Certified Laboratory. Closure Solutions has not performed an independent review of the data and is neither responsible for nor has confirmed the accuracy of this data.

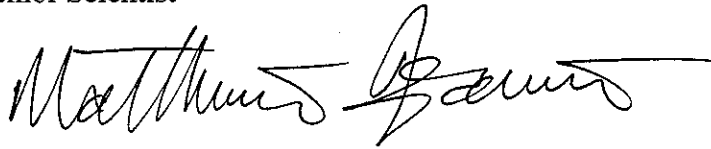
If you have any questions regarding this report, please contact Brian Busch at (925) 566-8403, or by e-mail at bbusch@closureolutions.com.

Sincerely,

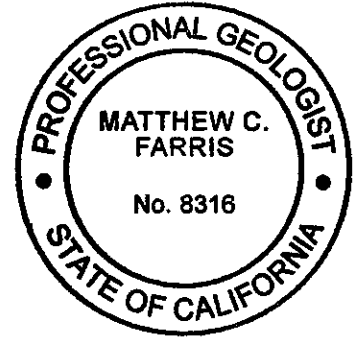
CLOSURE SOLUTIONS, Inc.



Brian Busch
Senior Scientist



Matthew Farris, P.G.
Project Geologist



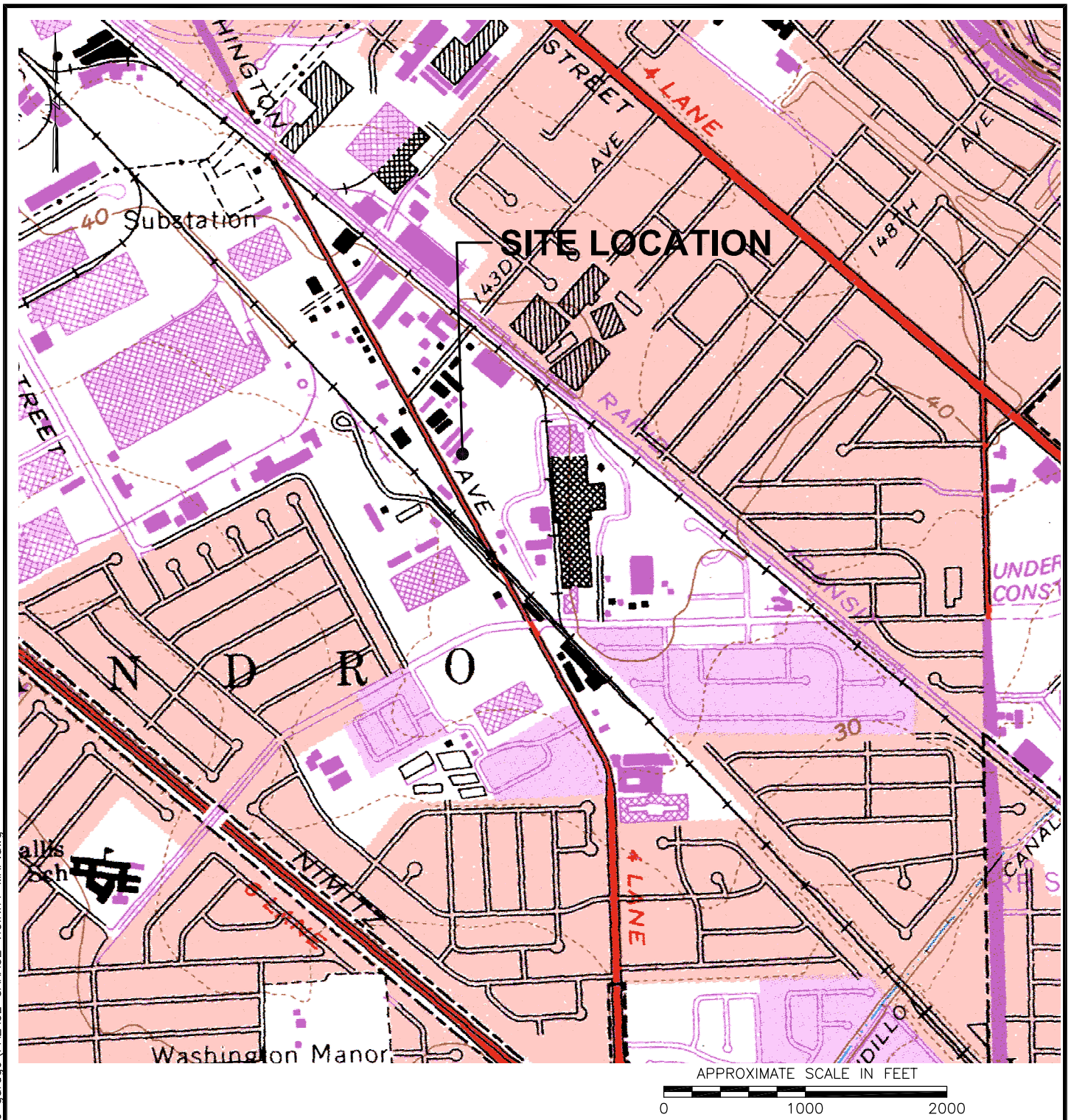
ATTACHMENTS:

Figure 1: Site Location Map
Figure 2: Site Plan

Table 1: Dual Phase Extraction Operational Parameters
Table 2: Dual Phase Extraction Induced Vacuum and Depth to Water Data
Table 3: Soil Vapor Analytical Data
Table 4: Dual Phase Extraction Groundwater Flows
Table 5: Soil Vapor Mass Removal Calculations

Attachment A: ACEHS Pilot Test Work Plan Approval Letter
Attachment B: Pilot Test Field Data Sheets
Attachment C: Certified Analytical Laboratory Reports

cc: Mr. Jeff Kerry, Kerry & Associates



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

FIGURE 1 SITE LOCATION MAP

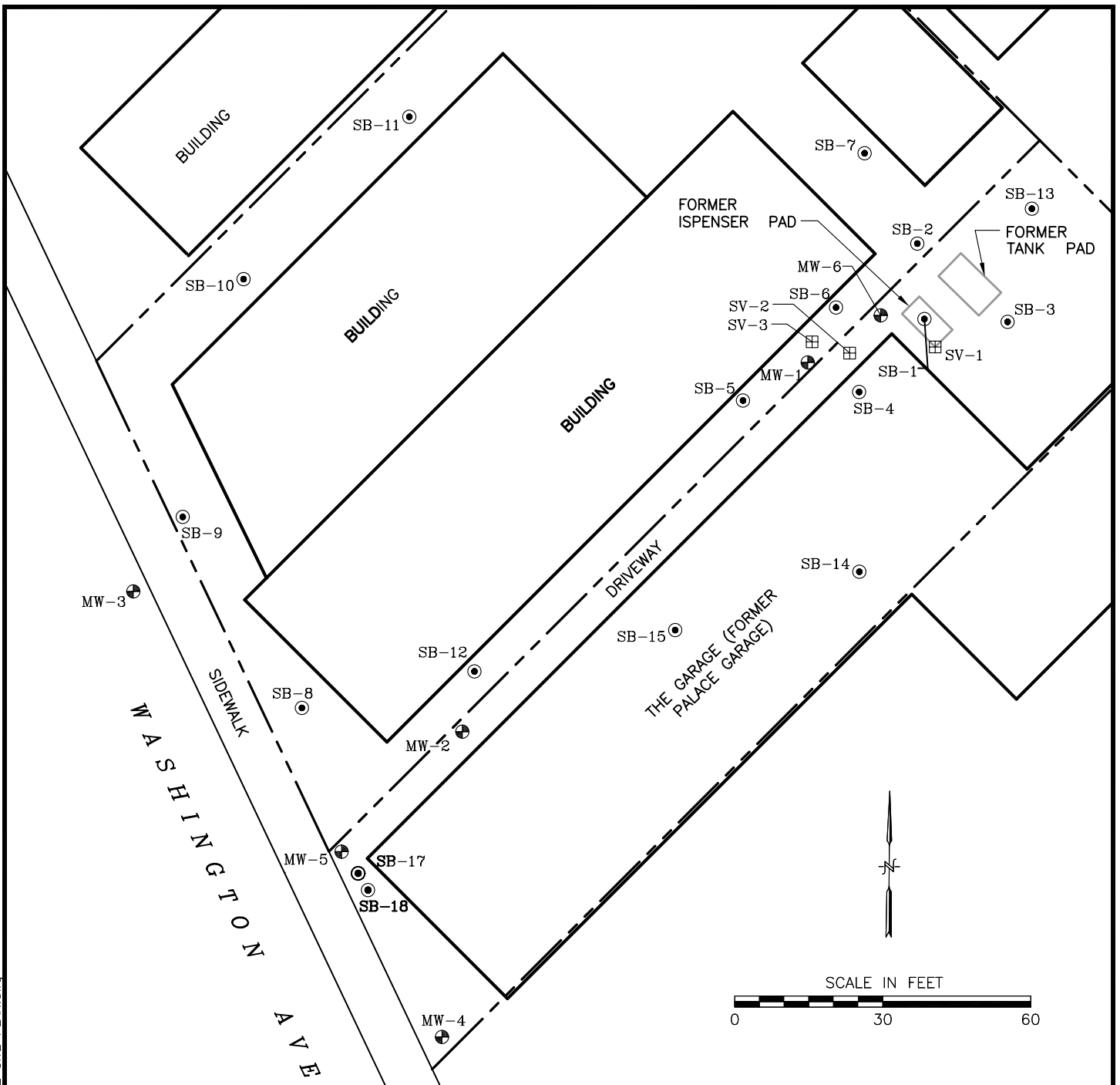
PALACE GARAGE
 14336 WASHINGTON AVENUE
 SAN LEANDRO, CALIFORNIA






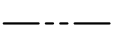
CLOSURE SOLUTIONS, INC.

4600 Northgate Boulevard • Suite 230
 Sacramento • California • 95834
 Phone: (800) 988-7880

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LEGEND:

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

NOTES:

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

FIGURE 2
SITE PLAN

PALACE GARAGE
14336 WASHINGTON AVENUE
SAN LEANDRO, CALIFORNIA



4600 Northgate Boulevard • Suite 230
Sacramento • California • 95834
Phone: (800) 988-7880

Table 1
Dual Phase Extraction Operational Parameters
Kerry and Associates - Palace Garage
14336 Washington Avenue
San Leandro, California

Extraction Well/s	Date	Time	System Recorded Hours	Total Operating Hours	Flowrate (cfm)	Applied Vacuum (in Hg.)	Wellhead Vacuum (in Hg.)	PID		Abatement Efficiency %	Operating Temperature (°F)	Comments
								Influent (ppmv)	Effluent (ppmv)			
								MW-1	02/21/12			
	02/21/12	11:00	4332.8	0	16.4	18	14.0	243	NM	NA	1500	Collect Influent sample at 11:30
	02/21/12	12:00	4333.8	1	24.6	20	12.8	542	NM	NA	1960	
	02/21/12	13:00	4334.8	2	26.3	18	12.8	NM	NM	NA	1753	
	02/21/12	14:00	4335.8	3	29.3	18	12.8	1,220	NM	NA	1748	
	02/21/12	15:00	4336.8	4	33.2	18	12.5	1,420	NM	NA	1750	
	02/21/12	16:00	4337.8	5	36.4	18	12.5	1,400	NM	NA	1712	Collect Influent sample at 16:30
	02/21/12	17:00	4338.8	6	36.2	19	12.5	2,300	NM	NA	1658	
	02/22/12	10:30	4338.8	6	26.0	20	9	1,860	NM	NA	1548	
	02/22/12	11:30	4339.8	7	36.2	19	10	1,840	NM	NA	1823	
	02/22/12	12:30	4340.8	8	37.1	19	10	3,465	NM	NA	1837	Collect Influent sample
	02/22/12	13:30	4341.8	9	53.3	19	10	2,260	NM	NA	1791	
	02/22/12	14:30	4342.8	10	36.8	21	10	1,890	NM	NA	1776	Collect Influent sample at 14:00
	02/22/12	15:30	4343.8	11	37.1	19	10	1,260	NM	NA	1712	
	02/22/12	16:30	4344.8	12	36.2	19	10	1,300	NM	NA	1710	
	02/23/12	10:30	4345.0	12.4	35.2	18	10	3,200	NM	NA	1698	
	02/23/12	11:30	4346.0	13.4	36.1	20	10	3,192	NM	NA	1863	Collect Influent sample
	02/23/12	12:30	4347.0	14.4	37	20	10.5	3,820	NM	NA	1853	
	02/23/12	13:30	4348.0	15.4	38	20	10.5	3,420	NM	NA	1876	
	02/23/12	14:30	4349.0	16.4	40.2	20.5	10.5	3,260	NM	NA	1873	
	02/23/12	15:30	4350.0	17.4	39.2	20.5	10	2,630	NM	NA	1814	
	02/24/12	10:00	4352.1	19.5	38.2	19	10	2,300	NM	NA	1803	
	02/24/12	11:00	4353.1	20.5	38.3	20	10	1,786	NM	NA	1843	
	02/24/12	12:00	4354.1	21.5	38.4	20	10	1,653	NM	NA	1843	
	02/24/12	13:00	4355.1	22.5	38.4	20	10.5	1,720	NM	NA	1673	
	02/24/12	14:00	4356.1	23.5	36.7	20	10	1,560	NM	NA	1670	Collect Influent sample at 14:30
	02/24/12	15:00	4357.1	24.5	38.2	19	10	1,712	NM	NA	1730	
	02/24/12	16:00	4358.1	25.5	37.3	19	10	1,618	NM	NA	1748	
	02/25/12	9:00	4360.0	27.4	34.1	19	10	2,200	NM	NA	1703	
	02/25/12	10:00	4361.0	28.4	35.1	19	10	1,790	NM	NA	1856	Collect Influent sample
	02/25/12	11:00	4362.0	29.4	36.0	19	10	1,826	NM	NA	1877	
	02/25/12	12:00	4363.0	30.4	36.2	19	10	1,809	NM	NA	1853	
	02/27/12	--	4376.3	43.7	NM	19	10	NM	NM	NA	NM	Stop Test - Final Reading

Table 1
Dual Phase Extraction Operational Parameters
Kerry and Associates - Palace Garage
14336 Washington Avenue
San Leandro, California

Extraction Well/s	Date	Time	System Recorded Hours	Total Operating Hours	Flowrate	Applied Vacuum	Wellhead Vacuum	PID		Abatement Efficiency	Operating Temperature	Comments
								Influent	Effluent			
								(cfm)	(in Hg.)			

Abbreviations:

cfm Cubic feet per minute
in Hg. Inches of mercury
PID Photoionization Detector
ppmv Parts per million by volume
°F Degrees Fahrenheit
NM Not measured
NA Not applicable

Table 2
Dual Phase Extraction Induced Vacuum and Depth to Water Data
Kerry and Associates - Palace Garage
14336 Washington Avenue
San Leandro, California

Extraction Well	Date	Time	Observation Wells								
			MW1			MW2			MW6		
			Induced Vacuum in WC	Depth to Water	Distance to well (ft)	Induced Vacuum in WC	Depth to Water	Distance to well (ft)	Induced Vacuum in WC	Depth to Water (ft)	Distance to well (ft)
Pre-Test	02/21/12	1030	0.00	15.10	--	0.00	15.00	--	0.00	14.95	--
MW-1	02/21/12	1100			0	0.00	15.00	100	0.16	14.95	21
	02/21/12	1130			0	0.00	15.00	100	0.40	15.02	21
	02/21/12	1200			0	0.03	15.01	100	0.21	15.13	21
	02/21/12	1300			0	0.03	15.01	100	0.16	15.15	21
	02/21/12	1400			0	0.00	15.01	100	0.02	15.18	21
	02/21/12	1500			0	0.00	15.01	100	0.03	15.20	21
	02/21/12	1600			0	0.00	15.01	100	0.00	15.24	21
	02/21/12	1700			0	0.02	15.01	100	0.20	15.26	21
MW-6	02/22/12	1030	3.20	15.21	21	0.00	15.01	121			0
	02/22/12	1130	3.70	15.32	21	0.00	15.01	121			0
	02/22/12	1230	4.00	15.31	21	0.00	15.01	121			0
	02/22/12	1330	4.00	15.30	21	0.00	15.01	121			0
	02/22/12	1430	3.20	15.29	21	0.00	15.01	121			0
	02/22/12	1530	3.30	15.30	21	0.00	15.01	121			0
	02/22/12	1630	3.30	15.30	21	0.00	15.01	121			0
	02/23/12	1030	0	15.22	21	0.00	15.01	121			0
	02/23/12	1130	3.20	15.24	21	0.00	15.01	121			0
	02/23/12	1230	3.20	15.26	21	0.01	15.01	121			0
	02/23/12	1330	3.30	15.3	21	0.00	15.01	121			0
	02/23/12	1430	3.40	15.32	21	0.00	15.02	121			0
	02/23/12	1530	3.40	15.32	21	0.00	15.02	121			0
	02/24/12	1000	3.40	15.28	21	0.00	15.01	121			0
	02/24/12	1100	3.40	15.36	21	0.00	15.01	121			0
	02/24/12	1200	3.40	15.4	21	0.02	15.02	121			0
	02/24/12	1300	NM	NM	21	NM	NM	121			0
	02/24/12	1400	3.45	15.41	21	0.00	15.02	121			0
	02/24/12	1500	NM	NM	21	NM	NM	121			0
	02/24/12	1600	3.40	15.41	21	0.00	15.02	121			0
	02/25/12	900	3.00	15.26	21	0.00	15.02	121			0
	02/25/12	1000	3.20	15.33	21	0.00	15.02	121			0
	02/25/12	1100	3.30	15.38	21	0.01	15.04	121			0
	02/25/12	1200	3.30	15.39	21	0.01	15.04	121			0

Abbreviations:

in WC Inches of water column
ft feet

Table 3
Soil Vapor Analytical Data
Kerry and Associates - Palace Garage
14336 Washington Avenue
San Leandro, California

Date	Sample ID	Time Collected	Detected Concentrations (ug/L)				
			GRO	Benzene	Toluene	Ethylbenzene	Xylenes
			8260B	8260B	8260B	8260B	8260B
2/21/2012	MW-1	11:30	6,400	150	140	250	730
	MW-1	16:30	3,000	40	12	110	316
2/22/2012	MW-6	12:30	19,000	160	210	430	1,200
	MW-6	14:00	17,000	130	180	370	1,060
2/23/2012	MW-6	11:30	22,000	130	210	370	1,020
2/24/2012	MW-6	14:30	17,000	100	210	380	1,070
2/25/2012	MW-6	10:00	21,000	82	190	260	720

Abbreviations:

ug/L = micrograms per liter

GRO = Gasoline Range Organics (C₆ - C₁₂)

B = Benzene

T = Toluene

E = Ethylbenzene

X - Xylenes

Table 4
Dual Phase Extraction Groundwater Flows
Kerry and Associates - Palace Garage
14336 Washington Avenue
San Leandro, California

Extraction Well	Date & Time	Time Interval (min.)	Totalizer Meter (gal)	Interval Volume (gal)	Observed Flow @ Knockout (gpm)	Comments	
MW-1	2/21/2012 10:55	-	104,530	-	0	Begin test on MW-1, stinger at 23 ft.	
	2/21/2012 11:00	5	104,530	-	5.00		
	2/21/2012 12:00	60	-	-	4.00		
	2/21/2012 13:00	60	105,042	512	4.00		
	2/21/2012 14:00	60	-	-	NM		
	2/21/2012 15:00	60	105,350	308	3.75		
	2/21/2012 16:00	60	105,590	240	3.75		
	2/21/2012 17:00	60	105,610	20	3.75	End test on MW-1	
Total Flow/Avg. Flowrate for day:				1080	4.04		
MW-6	2/22/2012 10:30	1050	105,610	0	2.75	Start test on MW-6, stinger at 15' depth	
	2/22/2012 11:30	60	105,740	130	2.25		
	2/22/2012 13:00	90	105,820	80	1.25		
	2/22/2012 14:30	90	105,900	80	1.75	Lowered stinger to 19.5 ft depth	
	2/22/2012 15:30	60	105,980	80	1.50		
	2/22/2012 16:30	60	106,060	80	1.25	Shut unit off at 1700	
	Total Flow/Avg. Flowrate for day:				450	1.79	
	2/23/2012 10:30	1080	106,080	20	2.00	Restart unit and resume testing	
	2/23/2012 11:00	30	106,170	90	1.75		
	2/23/2012 12:00	60	106,260	90	1.60		
	2/23/2012 14:30	150	106,530	270	1.45		
	2/23/2012 15:30	60	106,620	90	1.40	Left unit on overnight, generator issues caused shutdown	
	Total Flow/Avg. Flowrate for day:				560	1.64	
	2/24/2012 10:00	1110	106,810	190	1.70	Restart unit and resume testing	
	2/24/2012 11:30	90	106,810	0	0.6		
	2/24/2012 12:00	30	106,860	50	0.5		
	2/24/2012 14:00	120	107,200	340	0.5		
	2/24/2012 16:00	120	107,280	80	0.5	Left unit on overnight, generator issues caused shutdown	
	Total Flow/Avg. Flowrate for day:				660	0.76	
	2/25/2012 9:00	1020	107,420	140	1.6	Restart unit and resume testing	
	2/25/2012 10:00	60	107,500	80	1.5		
	2/25/2012 11:00	60	107,580	80	1.4		
	2/25/2012 12:00	60	107,660	80	1.3	Left unit running upon departure.	
2/26/2012 1:15	795	108,850	1,190	-	Propane tank empty, unit shut off.		
Total Flow/Avg. Flowrate for day:				1,570	1.45		
Total Gallons Extracted/Avg. Flowrate:				4,320	1.94		

Abbreviations:

min. = minutes
gpm = gallons per minute
gal. = gallon

Table 5
Soil Vapor Mass Removal Calculations
Kerry and Associates - Palace Garage
14336 Washington Avenue
San Leandro, California

Date	Sample ID/ Sample Collection Time	Extraction Wells	Interval Operating Hours	Detected Concentrations (ug/l)						Average Flowrate for Operating Period	Estimated GRO Removed for the Period	Estimated Benzene Removed for the Period	Estimated BTEX Removed for the Period
				GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	BTEX				
				EPA Method 8260B									
2/21/2012	MW-1 (1130)	MW-1	5.0	6,400	150	140	250	730	1,270	25.96	3.12	0.07	0.62
2/21/2012	MW-1 (1630)	MW-1	2.5	3,000	40	12	110	316	478	33.7	0.95	0.01	0.15
2/22/2012	MW-6 (1230)	MW-6	1.5	19,000	160	210	430	1,200	2,000	45.2	4.83	0.04	0.51
2/22/2012	MW-6 (1400)	MW-6	3.7	17,000	130	180	370	1,060	1,740	36.3	8.57	0.07	0.88
2/23/2012	MW-6 (1130)	MW-6	10.6	22,000	130	210	370	1,020	1,730	38.2	33.43	0.20	2.63
2/24/2012	MW-6 (1430)	MW-6	4.4	17,000	100	210	380	1,070	1,760	36.6	10.26	0.06	1.06
2/25/2012	MW-6 (1000)	MW-6	15.3	21,000	82	190	260	720	1,252	35.7	43.04	0.17	2.57
Total Estimated Mass Removed, lbs										104.21	0.62	8.41	

Abbreviations:

INF (1230) = sample identification, collection time in parentheses
 GRO = Gasoline range organics
 BTEX = Benzene, toluene, ethylbenzene, total xylenes
 lbs = pounds
 ug/l = micrograms per liter
 cfm = cubic feet per minute
 < = Not detected at or above laboratory reporting limits

Notes:

IDEAL GAS LAW (PV=NRT= (m/MW)RT) at Standard Conditions: Temperature= 25°C (77 °F; 537 °R); Pressure= 1 atm (406.8 in WC); R constant= 0.0821 lit.atm/mol K
 lbs removed = (Influent Flow, scfm)*Operating hrs*60 min/hr*(Influent concentration, mg/m³)*2.21E-6 lbs/mg*0.0283 m³/ft³

ATTACHMENT A
ACEH Pilot Test
Work Plan Approval Letter



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

December 15, 2011

Mr. Jeff Kerry
Kerry & Associates
151 Callan Avenue, Suite 300
San Leandro, CA 94577

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 *Additional Investigation and Remediation Pilot Test Work Plan Addendum*, dated November 11, 2011. The addendum was prepared and submitted on your behalf by Closure Solutions, Inc. (Closure Solutions). Thank you for submitting the addendum.

Based on ACEH staff review of the work plan addendum ACEH is in general agreement with the proposed scope of work. 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 or a work plan addendum 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) prior to the start of field activities.

TECHNICAL COMMENTS

- 1. Well Screen Intervals** – The work plan addendum proposed to limit the well screen lengths to approximately 9 feet (down from 15 feet) in order to fully screen the water-bearing zone and the capillary fringe at the western end of the site. ACEH understand this will be ultimately a field call; however, ACEH reiterates the requirement for shorter screen intervals in order to collect more representative groundwater samples at a site; generally with no more than a 5 foot sand interval.
- 2. Bio-Attenuation Parameters** – The work plan addendum appears to propose the collection of bio-attenuation parameters in wells on different dates. ACEH understands this applies to the first such event, and requests that an attempt to minimize the length of time between the sampling events. This information is best collected on the same day, to the extent possible.
- 3. Utility and Lateral Conduits** – Thank you for the inclusion of utility conduits on future site plans. Please ensure that the locations of the utility laterals to the site from the mains in the street are also included on those diagrams. While utility conduits in the street are not expected to create preferential pathways at those locations, the onsite laterals may play a part in vadose zone migration onsite.
- 4. Request for Email Addresses** – If your email address is not listed on the first page of this letter, or in the list of cc's below, ACEH is requesting your email address to help expedite communications and to help lower overall costs. Please provide that information in your next submittal.

Mr. Jeff Kerry
RO0000208
December 15, 2011, Page 2

TECHNICAL REPORT REQUEST

Please submit the following deliverable to ACEH (Attention: Mark Detterman), according to the following schedule:

- **February 17, 2012** – Soil and Groundwater Investigation Report (pilot test results) or Interim Corrective Action Plan (ICAP)
- **January 6, 2012** – Groundwater Monitoring Report
- **90 Days After Approval ICAP** – Interim Corrective Action Report

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.

Should you have any questions, please contact me at (510) 567--6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,

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

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations
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)

Donna Drogos, ACEH, (sent via electronic mail to donna.drogos@acgov.org)
Mark Detterman, ACEH, (sent via electronic mail to mark.detterman@acgov.org)
Geotracker, Electronic File

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

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

ELECTRONIC SUBMITTAL OF REPORTS

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

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	REVISION DATE: July 20, 2010
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	SUBJECT: Electronic Report Upload (ftp) Instructions

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

REQUIREMENTS

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

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

Submission Instructions

- 1) Obtain User Name and Password
 - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
 - i) Send an e-mail to deh.loptoxic@acgov.org
 - b) In the subject line of your request, be sure to include "**ftp PASSWORD REQUEST**" and in the body of your request, include the **Contact Information, Site Addresses,** and the **Case Numbers (RO# available in Geotracker) you will be posting for.**
- 2) Upload Files to the ftp Site
 - a) Using Internet Explorer (IE4+), go to <ftp://alcoftp1.acgov.org>
 - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
 - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
 - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
 - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
 - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
 - a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
 - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
 - c) The subject line of the e-mail must start with the RO# followed by **Report Upload.** (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
 - d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

ATTACHMENT B
Pilot Test Field Data Sheets

DAY 1
MW-1

TPE/DPE PILOT TEST DATA

Project Name: PALACE GARAGE Project # _____ Date: 2/2/12
 Extraction Equipment: MAKO Vapor Analyzer: PID
 Flow Meter model: Dwyer Anemometer Extraction Type: TPE or DPE

Sheet 1 of 6

Test Well (with stinger or pump depth)	Time / System Hour Meter (hrs)	System Flowrate(cfm)	System Vacuum ("Hg) At manifold	System Inlet Temp. (F)	System HC Conc. Influent (ppmv) With TPE PID	Dilution Flowrate (%)	Stinger Vacuum ("Hg) Stinger at 23.00'	Well Casing Vacuum ("Hg)	GW Flow Totalizer (gallons)	Instantaneous Flowrate at knock-out chamber (gpm)	DTW and Vacuum in Observation Wells			
											MW-6		MW-2	
											21.-	100.-		
Distance from Test Well (feet)														
DTW (ft) / Wellhead Vacuum ("H ₂ O)														
MW-6 MW-2														
Time										TOTAL gals	DTW	VAC	DTW	VAC
MW-1 DTW=15.10 TD=23.25	HR	Display/ Anemometer 3' = 0.049												
	43328/1055	START TEST												
11:00	43328		18"	1500	243	0%		14"	104520	5	14.95	.16"	15.00	.01
11:05			20"	1890	380	0%		13"		5				
11:15		16.40	20"	1866	390	0%		13"		4.5		.170"		
11:30			20"	1812	393	0%		13"		4.5"	15.02	.40"	15.00	0"
11:45		19.40	20"	1960	345	0%		12.75"		—				
12:00-	43338	24.60	20"	1960	542	0%		12.75"		4	15.13	0.21"	15.01	.03"
12:30			19"	1780	860	0%		12.75"		4				
13:00	43341.8	26.30	18"	1753	—	0%		12.75"	105042	4	15.15	0.16	15.01	.03"
13:30		27.10	19"		—	0%		13"		4			15.01	
14:00	43358	29.36	18"	1748	1220			12.75"		—	15.18	0.02	15.01	.00
14:30	OFFSITE	—	—	—	—			—	—	—	OFF SITE	—	—	—
15:00	43368	33.20	18"	1750	1420			12.50	109350	3.75	15.20	0.03	15.01	.00
15:30										3.75				
16:00	43378	36.40	18.25"	1712	1400	✓		12.50	105550	3.75	15.24	0.00	15.01	.00

Form template: forms\field\DVE-test Data Sheet - Brian Version

START 10:55 -
 1055 - 1100 = 20 gallons water
 11 - 1105 + 25 gallons

1105 - 1110 = 20 gallons
 1110 - 1115 = 20 gallons
 1115 - 1120 = 20 gallons

Propane 1100 = 85%, 1600 = 80%,
 1200 =
 1300 =
 1400 =
 1500 =

DAY 1
MW-1

TPE/DPE PILOT TEST DATA

Project Name: PALACE GARAGE Project # _____ Date: 2/21/12
 Extraction Equipment: _____ Vapor Analyzer: _____
 Flow Meter model: _____ Extraction Type: TPE or DPE

Sheet 2 of 6

Test Well (with stinger or pump depth)	Time / System Hour Meter (hrs)	System Flowrate(cfm)	System Vacuum ("Hg) At manifold	System Inlet Temp. (F)	System HC Conc. Influent (ppmv) With PID PID	Dilution Flowrate (%)	Stinger Vacuum ("Hg) AT 23.4	Well Casing Vacuum ("Hg)	GW Flow Totalizer (gallons)	Instantaneous Flowrate at knock-out chamber (gpm)	DTW and Vacuum in Observation Wells			
											Distance from Test Well (feet)			
											DTW (ft) / Wellhead Vacuum ("H ₂ O)			
											mw-1		mw-2	
MW-1	1700	4338.8	36.20	18.50	1658	2300	0%	12.50		3.75	15.26	0.20	15.01	0.02

F:\template\forms\field\DVE-test Data Sheet - Brian Version

TPE/DPE PILOT TEST DATA

Project Name: PALACE Project # _____ Date: 2/22/12
 Extraction Equipment: _____ Vapor Analyzer: PID - mini - Rave
 Flow Meter model: _____ Extraction Type: TPE or DPE

Sheet 3 of 6

Test Well (with stinger or pump depth)	Time/ System Hour Meter (hrs)	System Flowrate(cfm)	System Vacuum ("Hg) At manifold	System Inlet Temp. (F)	System HC Conc. Influent (ppmv) With FID	Dilution Flowrate (%)	Stinger Vacuum ("Hg) <u>START</u> <u>@ 14.90'</u>	Well Casing Vacuum ("Hg)	GW Flow Totalizer (gallons)	Instantaneous Flowrate at knock-out chamber (gpm)	DTW and Vacuum in Observation Wells			
											Distance from Test Well (feet)			
											DTW (ft) / Wellhead Vacuum ("H ₂ O)			
											MW-1	MW-2	MW-3	MW-4
MW-6 (14.90) DTW=14.85						0								
Time	Hz-					0%			<u>START</u>		DTW	ROI	DTW	ROI
1030	4338.8	26.00	20"	1548	1860	0%		9"	105610	2.75	15.21	3.20	15.01	0.0
1100			19"	1812	1790	0%		10"		2.50	15.26	3.40	15.01	0.0
1130	4339.8	36.26	19"	1823	1840	0%		10"	105740	2.25	15.32	3.70	15.01	0.0
1200			19"	1840	3100	0		10"		2.00	15.32	4.00	15.01	0.0
1230	4340.8	37.12	19"	1837	3465	0%		10"		1.25	15.31	4.00	15.01	0.0
1300			19"	1798	2340	0%		10"	105820	1.25	15.30	4.00	15.01	0.0
1330	4341.8	53.31	19"	1791	2260	0%		10"		0.75	15.30	4.00	15.01	0.0
1400			21"	1773	1860	0%	Stinger to bottom	10"		2.00	15.29	4.00	15.01	0.0
1430	4342.8	36.84	21"	1776	1890	0%		10"	105900	1.75	15.29	3.20	15.01	0.0
1500			19"	1709	1920	0%		10"		1.75	15.30	3.20	15.01	0.0
1530	4343.8	37.12	19"	1712	1260	0%		10"	105980	1.50	15.30	3.30	15.01	0.0
1600			19"	1703	1320	0%		10"		1.25	15.30	3.30	15.01	0.0
1630	4344.8	36.28	19"	1710	1300	0%		10"	106060	1.25	15.30	3.30	15.01	0.0
1700			19"	1706	1290	0%		10"		1.00	15.30	3.20	15.01	0.0

1030 START TEST

Air Sample @
 1130
 1230
 1430

Propene 1030 = 80%
 1330 =
 1630 =

DAY 3
MW-6

TPE/DPE PILOT TEST DATA

Project Name: PALACE GARAGE Project # _____ Date: 2/23/12
 Extraction Equipment: _____ Vapor Analyzer: RED
 Flow Meter model: _____ Extraction Type: TPE or (DPE)

Sheet 4 of 6

Test Well (with stinger or pump depth)	Time / System Hour Meter (hrs)	System Flowrate(cfm) Display/ Anemometer	System Vacuum ("Hg) At manifold	System Inlet Temp. (F)	System HC Conc. Influent (ppmv) With FID	Dilution Flowrate (%)	Stinger Vacuum ("Hg)	Well Casing Vacuum ("Hg)	GW Flow Totalizer (gallons)	Instantaneous Flowrate at knock-out chamber (gpm)	DTW and Vacuum in Observation Wells			
											Distance from Test Well (feet)			
											DTW (ft) / Wellhead Vacuum ("H ₂ O)			
											mw-1		mw-2	
										DTW	POI	DTW	POI	
MW-6 Bottom DW = 11.87														
10 ⁰⁰	START	up —												
1030	4345.0	35.20	18"	1698	3200	0%	—	10"	106080	2.00	15.22	0.0	15.01	0.0
11 ⁰⁰			20"	1724	2680	0%		10.5"	106170	1.75	15.22	2.4		
1130	4346.0	36.10	20"	1863	3192	0%				1.60	15.24	3.20	15.01	0.0
12 ⁰⁰									106260	1.60				
1230	4347.0	36.80	20"	1853	3110	0%		10.5"			15.26	3.20	15.01	0.1
13 ⁰⁰										1.50				
1330	4348.0	38.20	20"	1870	3420	0%		10.5"			15.30	3.30	15.01	0.0
14 ⁰⁰										1.50				
1430	4349.0	40.20	20.5"	1873	3260	0%		10.5"	106530	1.45	15.32	3.40	15.02	0.0
15 ⁰⁰														
1530	4350.0	39.20	20.5"	1814	2630	0%		10"	106620	1.40	15.32	3.40	15.02	0.0
16 ⁰⁰	4350.5													
1730	4352.1	SHUT	DOWN	-	GENERATOR	OUT								

Sample - MW-6 @ 1130

1550 gals at start DAY 3 -

DAY 4
MW-6

TPE/DPE PILOT TEST DATA

Project Name: PALACE GARAGE Project # _____ Date: 2/24/12
 Extraction Equipment: MAKO 400CAT Vapor Analyzer: P10
 Flow Meter model: DW122 Extraction Type: TPE or DPE

Sheet 5 of 6

Test Well (with stinger or pump depth)	Time / System Hour Meter (hrs)	System Flowrate(cfm) Display/ Anemometer	System Vacuum ("Hg) At manifold	System Inlet Temp. (F)	System HC Conc. Influent (ppmv) With FID	Dilution Flowrate (%)	Stinger Vacuum ("Hg)	Well Casing Vacuum ("Hg)	GW Flow Totalizer (gallons)	Instantaneous Flowrate at knock-out chamber (gpm)	DTW and Vacuum in Observation Wells			
											Distance from Test Well (feet)			
											DTW (ft) / Wellhead Vacuum ("H ₂ O)			
											MW-1	MW-2	MW-3	MW-4
										DTW	20'	DTW	20'	
930														
1000	4352.1	38.22	19"	1803	2300	0%	—	10"	106810	1.70	15.28	3.40	15.01	0.0
1030		38.46	20"	1808	1620	0%	—	10"		1.40	15.29	3.40	15.01	0.0
1100	4353.1	38.30	20"	1813	1786	0%	—	10"		.60	15.36	3.40	15.01	0.0
1130		38.26	20"	1858	1753	0%		10"	106810	.60	15.40	3.40	15.02	0.0
1200	4354.1	38.43	20"	1843	1653	0%		10"	106860	.50	15.40	3.40	15.02	0.2
1230														
1300	4355.1	38.41	20"	1673	1720	0%		10.5"			—	—	—	—
1330														
1400	4356.1	36.70	20"	1670	1560	0%		10"	107200	.50	15.41	3.45	15.02	0.0
1430														
1500	4357.1	36.20	19"	1730	1712	0%		10"			—	—	—	—
1600	4358.1	37.30	19"	1748	1618	0%		10"	107250	.50	15.41	3.40	15.02	0.0

* Sme unit shut down @ 4352.1 hrs
 generator running & BACK firing at restart

2280 gal water @ Start
 Day 4

Propane =
 10:00 = 50%

DAY 5
MW-6

TPE/DPE PILOT TEST DATA

Project Name: PALACE GARAGE Project # _____ Date: 2/25/12
 Extraction Equipment: _____ Vapor Analyzer: _____
 Flow Meter model: _____ Extraction Type: TPE or DPE

Sheet 6 of 6

Test Well (with stinger or pump depth)	Time / System Hour Meter (hrs)	System Flowrate(cfm)	System Vacuum ("Hg) At manifold	System Inlet Temp. (F)	System HC Conc. Influent (ppmv) With FID	Dilution Flowrate (%)	Stinger Vacuum ("Hg) <i>stinger at bottom</i>	Well Casing Vacuum ("Hg)	GW Flow Totalizer (gallons)	Instantaneous Flowrate at knock-out chamber (gpm)	DTW and Vacuum in Observation Wells			
											Distance from Test Well (feet)			
											DTW (ft) / Wellhead Vacuum ("H ₂ O)			
											MW-1	MW-2	MW-1	MW-2
											DTW	Roi	DTW	Roi
900	4360.0	34.12	19"	1703	2200	01.		10"	107420.1	1.65	15.26	3.0	15.02	0.0
930														
1000	4361.0	35.18	19"	1856	1790	07.		10"	107500	1.55	15.33	3.20	15.02	0.0
1030														
1100	4362.0	36.03	19"	1871	1826	01.		10"	107580	1.40	15.38	3.30	15.04	0.1
1130														
1200	4363.0	36.26	19"	1853	1809	01		10"	107660	1.30	15.39	3.30	15.04	0.1
1230														
1300	OFF SITE													
2/27/12	4376.3	—	—	—	—	—	—	—	108850.1	Final				
									MW6	DTW=14.6				
										TD=19.60				

Form template: formsfield\DVE-test Data Sheet - Brian Version

* SYS OFF at 4360.0 hrs on 2/25/12 → RESTRICT
 propane at 30% @ 900 AM. —

ATTACHMENT C
Certified Analytical Laboratory Report



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

28 February 2012

Brian Busch
Closure Solutions
2300 Clayton Rd. Suite 1435
Concord, CA 94520
RE: Palace Garage

Enclosed are the results of analyses for samples received by the laboratory on 02/23/12 09:35. 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

Closure Solutions 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Brian Busch	Reported: 02/28/12 14:41
---	--	------------------------------------

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1@1130	T120316-01	Air	02/21/12 11:30	02/23/12 09:35
MW-1@1630	T120316-02	Air	02/21/12 16:30	02/23/12 09:35
MW-6@1230	T120316-04	Air	02/21/12 12:30	02/23/12 09:35
MW-6@1400	T120316-05	Air	02/21/12 14:00	02/23/12 09:35

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

Closure Solutions 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Brian Busch	Reported: 02/28/12 14:41
---	--	------------------------------------

MW-1@1130
T120316-01 (Air)

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 in Air

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	150	0.50	ug/l	1	2022314	02/23/12	02/24/12	EPA 8260B	
Toluene	140	0.50	"	"	"	"	"	"	
Ethylbenzene	250	0.50	"	"	"	"	"	"	
m,p-Xylene	590	1.0	"	"	"	"	"	"	
o-Xylene	140	0.50	"	"	"	"	"	"	
C6-C12 (GRO)	6400	50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		105 %	89.3-110		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		106 %	80-119		"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		94.8 %	66.4-140		"	"	"	"	

SunStar Laboratories, Inc.

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Daniel Chavez, Project Manager



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

Closure Solutions 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Brian Busch	Reported: 02/28/12 14:41
---	--	------------------------------------

MW-1@1630
T120316-02 (Air)

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 in Air

Benzene	40	0.50	ug/l	1	2022314	02/23/12	02/24/12	EPA 8260B	
Toluene	12	0.50	"	"	"	"	"	"	
Ethylbenzene	110	0.50	"	"	"	"	"	"	
m,p-Xylene	270	1.0	"	"	"	"	"	"	
o-Xylene	46	0.50	"	"	"	"	"	"	
C6-C12 (GRO)	3000	50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %		89.3-110		"	"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>		109 %		80-119		"	"	"	"
<i>Surrogate: Dibromofluoromethane</i>		92.5 %		66.4-140		"	"	"	"

SunStar Laboratories, Inc.

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Daniel Chavez, Project Manager

Closure Solutions
2300 Clayton Rd. Suite 1435
Concord CA, 94520

Project: Palace Garage
Project Number: [none]
Project Manager: Brian Busch

Reported:
02/28/12 14:41

MW-6@1230
T120316-04 (Air)

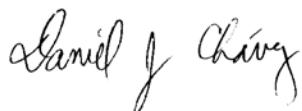
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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SunStar Laboratories, Inc.

Volatile Organic Compounds by EPA Method 8260B in Air

Benzene	160	0.50	ug/l	1	2022314	02/23/12	02/24/12	EPA 8260B	
Toluene	210	0.50	"	"	"	"	"	"	
Ethylbenzene	430	0.50	"	"	"	"	"	"	
m,p-Xylene	940	1.0	"	"	"	"	"	"	
o-Xylene	260	0.50	"	"	"	"	"	"	
C6-C12 (GRO)	19000	50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		104 %		89.3-110		"	"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>		108 %		80-119		"	"	"	"
<i>Surrogate: Dibromofluoromethane</i>		92.6 %		66.4-140		"	"	"	"

SunStar Laboratories, Inc.



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Daniel Chavez, Project Manager



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

Closure Solutions 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Brian Busch	Reported: 02/28/12 14:41
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MW-6@1400
T120316-05 (Air)

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 in Air

Benzene	130	0.50	ug/l	1	2022314	02/23/12	02/24/12	EPA 8260B	
Toluene	180	0.50	"	"	"	"	"	"	
Ethylbenzene	370	0.50	"	"	"	"	"	"	
m,p-Xylene	830	1.0	"	"	"	"	"	"	
o-Xylene	230	0.50	"	"	"	"	"	"	
C6-C12 (GRO)	17000	50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		105 %		89.3-110		"	"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>		108 %		80-119		"	"	"	"
<i>Surrogate: Dibromofluoromethane</i>		94.6 %		66.4-140		"	"	"	"

SunStar Laboratories, Inc.

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Daniel Chavez, Project Manager



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

Closure Solutions 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Brian Busch	Reported: 02/28/12 14:41
---	--	-----------------------------

Volatile Organic Compounds by EPA Method 8260B in Air - 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 2022314 - EPA 5030 GCMS

Blank (2022314-BLK1)

Prepared: 02/23/12 Analyzed: 02/24/12

Benzene	ND	0.50	ug/l							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
m,p-Xylene	ND	1.0	"							
o-Xylene	ND	0.50	"							
C6-C12 (GRO)	ND	50	"							
Surrogate: Toluene-d8	41.1		"	40.0		103	89.3-110			
Surrogate: 4-Bromofluorobenzene	42.8		"	40.0		107	80-119			
Surrogate: Dibromofluoromethane	35.4		"	40.0		88.4	66.4-140			

LCS (2022314-BS1)

Prepared: 02/23/12 Analyzed: 02/24/12

Chlorobenzene	112	1.0	ug/l	100		112	75-125			
1,1-Dichloroethene	107	1.0	"	100		107	75-125			
Trichloroethene	108	1.0	"	100		108	75-125			
Benzene	110	0.50	"	100		110	75-125			
Toluene	114	0.50	"	100		114	75-125			
Surrogate: Toluene-d8	41.4		"	40.0		104	89.3-110			
Surrogate: 4-Bromofluorobenzene	40.6		"	40.0		101	80-119			
Surrogate: Dibromofluoromethane	38.0		"	40.0		94.9	66.4-140			

LCS Dup (2022314-BSD1)

Prepared: 02/23/12 Analyzed: 02/24/12

Chlorobenzene	118	1.0	ug/l	100		118	75-125	4.39	20	
1,1-Dichloroethene	113	1.0	"	100		113	75-125	4.95	20	
Trichloroethene	110	1.0	"	100		110	75-125	2.43	20	
Benzene	114	0.50	"	100		114	75-125	3.59	20	
Toluene	117	0.50	"	100		117	75-125	2.59	20	
Surrogate: Toluene-d8	41.8		"	40.0		104	89.3-110			
Surrogate: 4-Bromofluorobenzene	41.2		"	40.0		103	80-119			
Surrogate: Dibromofluoromethane	39.4		"	40.0		98.4	66.4-140			

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

Closure Solutions

Project: Palace Garage

2300 Clayton Rd. Suite 1435

Project Number: [none]

Concord CA, 94520

Project Manager: Brian Busch

Reported:

02/28/12 14:41

Notes and Definitions

- 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: CLOSURE SOLUTIONS INC
 Address: 2300 Clayton Rd., Suite 1435, Concord, CA
 Phone: 915-566-8403 Fax: _____
 Project Manager: BRIAN BUSCH

Date: 2/22/12 Page: 1 Of 1
 Project Name: PALACE GARAGE
 Collector: K. Dolan Client Project #: _____
 Batch #: PILOT TEST (DRI-2) EDF #: T120316

Sample ID	Date Sampled	Time	Sample Type	Container Type	8260 (TPH, G/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	
MW-1 @ 1130	2/21/12		Vapor	Teklar	X									01			
MW-1 @ 1630	2/21/12				X									02			
MW-6 @ 1130	2/22/12				X									03	* Hold Analysis		
MW-6 @ 1230	2/22/12				X									04			
MW-6 @ 1400	2/22/12				X									05	fill contacted by CSI PM on 2/23/12 *		
KS																	
Relinquished by: (signature) <u>[Signature]</u> Date / Time <u>2/22/12</u>			Received by: (signature) <u>[Signature]</u> Date / Time <u>2/22/12</u>			Total # of containers		Chain of Custody seals <u>Y</u> /N/NA		Seals intact? <u>Y</u> /N/NA		Received good condition/cold <u>Y</u> /N/NA		Notes		Turn around time: <u>STD</u>	
Relinquished by: (signature) <u>GSO</u> Date / Time <u>2-23-12</u>			Received by: (signature) <u>[Signature]</u> Date / Time <u>2-23-12</u>			20.0								Results to: BBusch@closure-solutions.com kdolan@closure-solutions.com			
Relinquished by: (signature) _____ Date / Time _____			Received by: (signature) _____ Date / Time _____														

STD. TAT
2-23-12

Total # of containers 5

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

STD. TAT
COC 112821 SC

SAMPLE RECEIVING REVIEW SHEET

BATCH # 7120316

Client Name: CLOSURE SOLUTIONS

Project: PALACE GARAGE

Received by: SUNNY

Date/Time Received: 2-23-12 / 9:35

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 20.2 °C +/- the CF (- 0.2°C) = 20.0 °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 ^{SL} 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 SL 2-23-12

Comments:

SAMPLE NON-CONFORMANCE SHEET

BATCH # T120316

▪ **COOLERS**

- Not Received (received COC only)
- Leaking/Damaged
- Other:

▪ **CUSTODY SEALS**

- None
- Not Intact

▪ **TEMPERATURE (SPECS 6 > 0°C)**

- Cooler/Sample Temp(s)
- Temperature Blank(s)

▪ **CHAIN OF CUSTODY (COC)**

- Not relinquished by client; No date/time relinquished
- Incomplete information provide
- COC not received – notify PM

▪ **CONTAINERS**

- Leaking Broken
- Extra Missing

▪ **LABELS**

- Not the same sample ID / info as on the COC
- Incomplete Information
- Markings/Info illegible

▪ **SAMPLES**

- Samples **NOT RECEIVED** but listed on COC
- Samples received but **NOT LISTED** on COC
- Logged based on Label Information and not COC
- Logged according to Work Plan and not COC
- Logged in, **ON HOLD** until further notice
- Insufficient quantities for analysis
- Improper container used
- Mislabeled as to tests, preservatives, etc.
- Holding time expired – list sample ID and test
- Not preserved/Improper preservative used
- Without Labels, no information on containers
- Other

COMMENTS:

MW-6 @ 1130 'S TEDLAR WAS WRONG. THEY PUT MW-1 @ 1210 WHICH
IS NOT CORRECT. SHOULD BE MW-6 @ 1130.

Sample fractioning only if broken container compromises other samples or if out of temp reading impacts more than one cooler

Fraction													Preser.
VOA													

H: HCL, S: H2SO4, N: HNO3, V: VOA, SL, Sleeve, E: Encore, T: Terracore, PB: Poly Bottle, CGB: Clear Glass Bottle, AGJ: Amber Glass Jar, AGB: Amber Glass Bottle, n/f/l:HNO3-Lab filtered, n/f:HNO3-Field filtered, zna: Zinc Acetate/Sodium Hydroxide, Na2s2o3: sodium thiosulfate



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

01 March 2012

Brian Busch
Closure Solutions
2300 Clayton Rd. Suite 1435
Concord, CA 94520
RE: Palace Garage

Enclosed are the results of analyses for samples received by the laboratory on 02/25/12 10:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Daniel Chavez
Project Manager

Closure Solutions
2300 Clayton Rd. Suite 1435
Concord CA, 94520

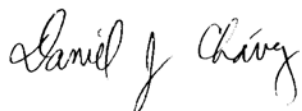
Project: Palace Garage
Project Number: [none]
Project Manager: Brian Busch

Reported:
03/01/12 14:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW6@1130	T120336-01	Air	02/23/12 11:30	02/25/12 10:40
MW6@1430	T120336-02	Air	02/24/12 14:30	02/25/12 10:40

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

Closure Solutions 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Brian Busch	Reported: 03/01/12 14:42
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MW6@1130
T120336-01 (Air)

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 in Air

Benzene	130	0.50	ug/l	1	2022719	02/27/12	02/27/12	EPA 8260B	I-02
Toluene	210	0.50	"	"	"	"	"	"	I-02
Ethylbenzene	370	0.50	"	"	"	"	"	"	I-02
m,p-Xylene	810	1.0	"	"	"	"	"	"	I-02
o-Xylene	210	0.50	"	"	"	"	"	"	I-02
C6-C12 (GRO)	22000	50	"	"	"	"	"	"	I-02
<i>Surrogate: Toluene-d8</i>		106 %	89.3-110		"	"	"	"	I-02
<i>Surrogate: 4-Bromofluorobenzene</i>		108 %	80-119		"	"	"	"	I-02
<i>Surrogate: Dibromofluoromethane</i>		95.4 %	66.4-140		"	"	"	"	I-02

SunStar Laboratories, Inc.

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Daniel Chavez, Project Manager



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

Closure Solutions 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Brian Busch	Reported: 03/01/12 14:42
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MW6@1430
T120336-02 (Air)

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 in Air

Benzene	100	0.50	ug/l	1	2022719	02/27/12	02/27/12	EPA 8260B	
Toluene	210	0.50	"	"	"	"	"	"	
Ethylbenzene	380	0.50	"	"	"	"	"	"	
m,p-Xylene	840	1.0	"	"	"	"	"	"	
o-Xylene	230	0.50	"	"	"	"	"	"	
C6-C12 (GRO)	17000	50	"	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %		89.3-110		"	"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>		109 %		80-119		"	"	"	"
<i>Surrogate: Dibromofluoromethane</i>		98.1 %		66.4-140		"	"	"	"

SunStar Laboratories, Inc.

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Daniel Chavez, Project Manager



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

Closure Solutions
 2300 Clayton Rd. Suite 1435
 Concord CA, 94520

Project: Palace Garage
 Project Number: [none]
 Project Manager: Brian Busch

Reported:
 03/01/12 14:42

Volatile Organic Compounds by EPA Method 8260B in Air - 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 2022719 - EPA 5030 GCMS

Blank (2022719-BLK1)

Prepared & Analyzed: 02/27/12

Benzene	ND	0.50	ug/l							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
m,p-Xylene	ND	1.0	"							
o-Xylene	ND	0.50	"							
C6-C12 (GRO)	ND	50	"							
Surrogate: Toluene-d8	41.2		"	40.0		103	89.3-110			
Surrogate: 4-Bromofluorobenzene	42.6		"	40.0		106	80-119			
Surrogate: Dibromofluoromethane	36.2		"	40.0		90.4	66.4-140			

LCS (2022719-BS1)

Prepared & Analyzed: 02/27/12

Chlorobenzene	113	1.0	ug/l	100		113	75-125			
1,1-Dichloroethene	106	1.0	"	100		106	75-125			
Trichloroethene	105	1.0	"	100		105	75-125			
Benzene	109	0.50	"	100		109	75-125			
Toluene	115	0.50	"	100		115	75-125			
Surrogate: Toluene-d8	40.6		"	40.0		101	89.3-110			
Surrogate: 4-Bromofluorobenzene	40.4		"	40.0		101	80-119			
Surrogate: Dibromofluoromethane	38.3		"	40.0		95.8	66.4-140			

LCS Dup (2022719-BSD1)

Prepared & Analyzed: 02/27/12

Chlorobenzene	108	1.0	ug/l	100		108	75-125	4.42	20	
1,1-Dichloroethene	103	1.0	"	100		103	75-125	2.44	20	
Trichloroethene	102	1.0	"	100		102	75-125	2.79	20	
Benzene	108	0.50	"	100		108	75-125	1.20	20	
Toluene	113	0.50	"	100		113	75-125	1.98	20	
Surrogate: Toluene-d8	40.5		"	40.0		101	89.3-110			
Surrogate: 4-Bromofluorobenzene	41.0		"	40.0		102	80-119			
Surrogate: Dibromofluoromethane	39.7		"	40.0		99.2	66.4-140			

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

Closure Solutions
2300 Clayton Rd. Suite 1435
Concord CA, 94520

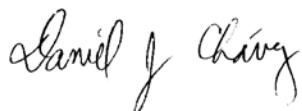
Project: Palace Garage
Project Number: [none]
Project Manager: Brian Busch

Reported:
03/01/12 14:42

Notes and Definitions

I-02 This result was analyzed outside of the EPA recommended holding time.
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: Closure Solutions Inc
Address: 2300 Clayton Rd., Concord, CA
Phone: _____ Fax: _____
Project Manager: Brian Busch

Date: 2/24/12 Page: 1 of 1
Project Name: Palace Garage
Collector: K. Dolan Client Project #: _____
Batch #: PALACE OPE EDF #: 7120326

Sample ID	Date Sampled	Time	Sample Type	Container Type	8260 (TPHQ/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
MW6@ 1130	2/23/12	1130	Vapor	Telcar	X									01		
MW6@ 1430	2/24/12	1430	Vapor	Telcar	X									02		

Relinquished by: (signature) <u>[Signature]</u> Date / Time <u>2/24/12 14</u>	Received by: (signature) <u>[Signature]</u> Date / Time <u>2-24-12 2:52</u>	Total # of containers _____ Chain of Custody seals <input checked="" type="checkbox"/> Y/ <input type="checkbox"/> N/ <input type="checkbox"/> NA Seals intact? <input checked="" type="checkbox"/> Y/ <input type="checkbox"/> N/ <input type="checkbox"/> NA Received good condition/cold <input checked="" type="checkbox"/> 200 Turn around time: <u>300</u>	Notes results to: B Busch @ Closure Solutions - Con K Dolan @ Closure Solutions - Con
Relinquished by: (signature) <u>[Signature]</u> Date / Time _____	Received by: (signature) <u>[Signature]</u> Date / Time <u>10:40</u>		
Relinquished by: (signature) _____ Date / Time _____	Received by: (signature) _____ Date / Time <u>2-25-12</u>		

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

STD. TAT
COC 112819 SL
2-25-12

SAMPLE RECEIVING REVIEW SHEET

BATCH # 7120336

Client Name: CLOSURE SOLUTIONS

Project: PALACE GARAGE

Received by: PUNNY

Date/Time Received: 2-25-12 / 10:40

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 20.2 °C +/- the CF (-0.2°C) = 20.0 °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 SL 2-25-12

Comments:



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

02 March 2012

Brian Busch
Closure Solutions
2300 Clayton Rd. Suite 1435
Concord, CA 94520
RE: Palace Garage

Enclosed are the results of analyses for samples received by the laboratory on 02/28/12 11:20. 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

Closure Solutions 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Brian Busch	Reported: 03/02/12 17:21
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW6@1000	T120346-01	Air	02/25/12 10:00	02/28/12 11:20

SunStar Laboratories, Inc.

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Daniel Chavez, Project Manager



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

Closure Solutions 2300 Clayton Rd. Suite 1435 Concord CA, 94520	Project: Palace Garage Project Number: [none] Project Manager: Brian Busch	Reported: 03/02/12 17:21
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MW6@1000
T120346-01 (Air)

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 in Air

Benzene	82	0.50	ug/l	1	2022814	02/28/12	02/28/12	EPA 8260B	O-04
Toluene	190	0.50	"	"	"	"	"	"	O-04
Ethylbenzene	260	0.50	"	"	"	"	"	"	O-04
m,p-Xylene	590	1.0	"	"	"	"	"	"	O-04
o-Xylene	130	0.50	"	"	"	"	"	"	O-04
C6-C12 (GRO)	21000	50	"	"	"	"	"	"	O-04
<i>Surrogate: Toluene-d8</i>		103 %		89.3-110	"	"	"	"	O-04
<i>Surrogate: 4-Bromofluorobenzene</i>		107 %		80-119	"	"	"	"	O-04
<i>Surrogate: Dibromofluoromethane</i>		90.0 %		66.4-140	"	"	"	"	O-04

SunStar Laboratories, Inc.

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Daniel Chavez, Project Manager



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

Closure Solutions
 2300 Clayton Rd. Suite 1435
 Concord CA, 94520

Project: Palace Garage
 Project Number: [none]
 Project Manager: Brian Busch

Reported:
 03/02/12 17:21

Volatile Organic Compounds by EPA Method 8260B in Air - 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 2022814 - EPA 5030 GCMS

Blank (2022814-BLK1)

Prepared & Analyzed: 02/28/12

Benzene	ND	0.50	ug/l							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
m,p-Xylene	ND	1.0	"							
o-Xylene	ND	0.50	"							
C6-C12 (GRO)	ND	50	"							
Surrogate: Toluene-d8	41.6		"	40.0		104	89.3-110			
Surrogate: 4-Bromofluorobenzene	42.2		"	40.0		105	80-119			
Surrogate: Dibromofluoromethane	35.8		"	40.0		89.5	66.4-140			

LCS (2022814-BS1)

Prepared & Analyzed: 02/28/12

Chlorobenzene	117	1.0	ug/l	100		117	75-125			
1,1-Dichloroethene	111	1.0	"	100		111	75-125			
Trichloroethene	114	1.0	"	100		114	75-125			
Benzene	110	0.50	"	100		110	75-125			
Toluene	116	0.50	"	100		116	75-125			
Surrogate: Toluene-d8	42.2		"	40.0		106	89.3-110			
Surrogate: 4-Bromofluorobenzene	42.4		"	40.0		106	80-119			
Surrogate: Dibromofluoromethane	37.4		"	40.0		93.4	66.4-140			

LCS Dup (2022814-BSD1)

Prepared & Analyzed: 02/28/12

Chlorobenzene	111	1.0	ug/l	100		111	75-125	5.25	20	
1,1-Dichloroethene	107	1.0	"	100		107	75-125	3.95	20	
Trichloroethene	105	1.0	"	100		105	75-125	8.58	20	
Benzene	107	0.50	"	100		107	75-125	2.39	20	
Toluene	113	0.50	"	100		113	75-125	3.36	20	
Surrogate: Toluene-d8	41.2		"	40.0		103	89.3-110			
Surrogate: 4-Bromofluorobenzene	41.0		"	40.0		103	80-119			
Surrogate: Dibromofluoromethane	36.5		"	40.0		91.2	66.4-140			

SunStar Laboratories, Inc.

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Daniel Chavez, Project Manager

Closure Solutions
2300 Clayton Rd. Suite 1435
Concord CA, 94520

Project: Palace Garage
Project Number: [none]
Project Manager: Brian Busch

Reported:
03/02/12 17:21

Notes and Definitions

O-04 This sample was received and analyzed outside the EPA recommended holding time.

DET Analyte DETECTED

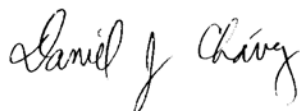
ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

SunStar Laboratories, Inc.



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Daniel Chavez, Project Manager

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

Chain of Custody Record

Client: CLOSURE SOLUTIONS Inc.
 Address: 2300 Clayton Rd., St. 1345, Concord, CA
 Phone: _____ Fax: _____
 Project Manager: BRIAN BUSCH

Date: 2/27/12 Page: 1 Of 1
 Project Name: PALACE GARAGE
 Collector: K. Dolan Client Project #: _____
 Batch #: PALACE DPE TEST EDF #: 7120346

Sample ID	Date Sampled	Time	Sample Type	Container Type	8260 (TPH-g/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
MW6 @ 1000	2/25/12	1000	Vapor	Tedlar	X									01		
															* Sample out of hold time → Please run sample	
Relinquished by: (signature) <u>[Signature]</u> Date / Time _____					Received by: (signature) <u>Ship via Fed Ex</u> Date / Time _____					Total # of containers		Notes				
Relinquished by: (signature) <u>Fed Ex</u> Date / Time <u>2-28-12 / 11:20</u>					Received by: (signature) <u>[Signature]</u> Date / Time <u>2-28-12</u>					Chain of Custody seals Y/N/NA						
Relinquished by: (signature) _____ Date / Time _____					Received by: (signature) _____ Date / Time _____					Seals intact? Y/N/NA						
										Received good condition/cold		20.0				
Turn around time: <u>STD</u>																

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

COC 112820

SAMPLE RECEIVING REVIEW SHEET

BATCH # 7120346

Client Name: CLOSURE SOLUTIONS

Project: PALACE GARAGE

Received by: SUNNY

Date/Time Received: 2-28-12 / 1600

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 20.2 °C +/- the CF (-0.2°C) = 20.0 °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 2-28-12

Comments:
